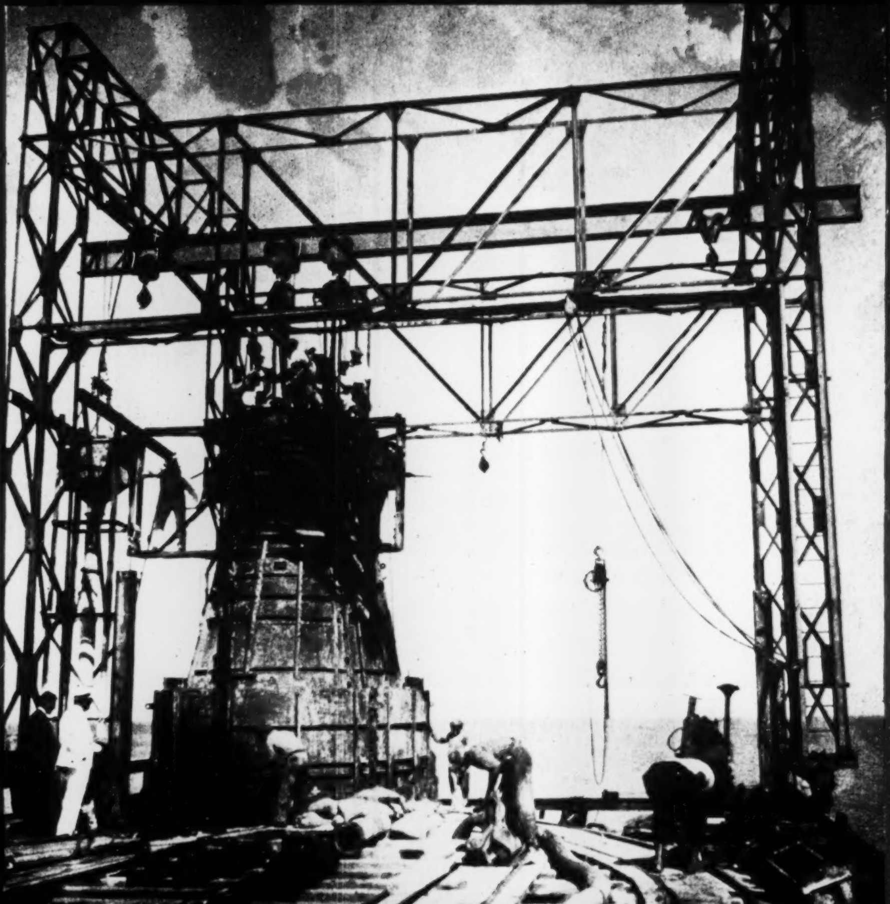
ENGINEERING NEWS-RECORD

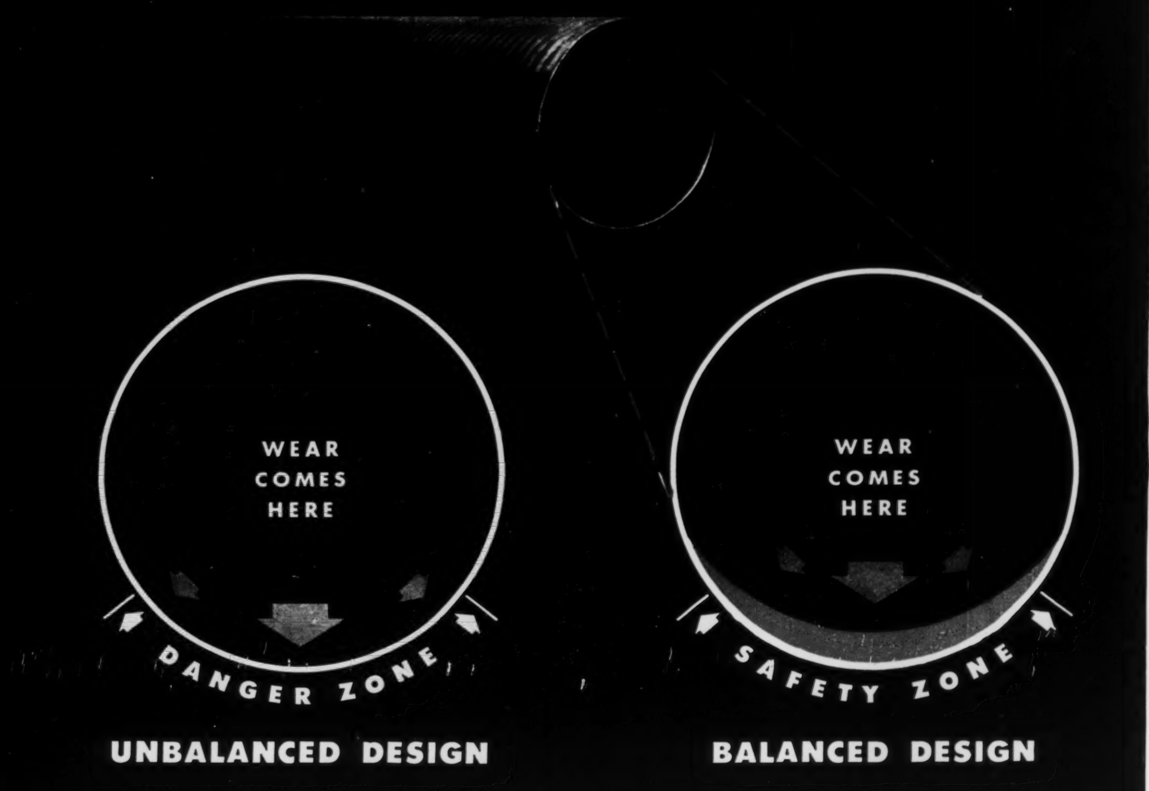
MARCH 31, 1949



A [illegible]-high form is ready for use in construction of a mile-long pier in Yucatan

DEMOUNTABLE DREDGE FOR COLORADO RIVER

A McGRAW-HILL PUBLICATION



The pipe that was "rubbed the wrong way"

The rub came from erosion that wore out culvert bottoms and ruffled the feelings of engineers and officials because it hit them in the pocketbook. When they had to replace any type of culvert they generally found the upper three-fourths in good condition.

Then ARMCO Engineers smoothed things over by developing ARMCO PAVED-INVERT Pipe. This new pipe had a thick bituminous pavement in the invert for greater protection against erosion. Now the bottom lasts as long as the top—service life is up, maintenance down—and everybody's happy.

Giving engineers and contractors exactly what they need has been a prime goal at Armco for more than 40 years. Spiral Welded Steel Pipe, HEL-COR Perforated Pipe, STEELOX Buildings, FLEX-BEAM Guardrail, PIPE-ARCH and sturdy MULTI-PLATE Bridges are just a few examples.

Today you can bring your drainage and construction problems to Armco with full assurance you will receive all the benefits of long experience, extensive research facilities, and a real interest in helping to solve them.

Armco has a complete range of engineered products and convenient, authoritative data to help you. If your problem is difficult or unusual, why not talk it over with us.

ARMCO

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Where "on the rocks" means a success story!

HAULING jobs carried out over the rocky terrain of quarries and open pit mines are *tough on tires.* But the tougher the operation, the higher the praise for B. F. Goodrich tires such as the big *Universals* shown above. For example: 40% of the tires removed on one open pit mining job were BFG tires; 68% of these were repairable or recappable. Of the balance, representing 3 other major brands, only 20% were found to be of value; the remainder had to be scrapped!

B. F. Goodrich tires chalk up such records because they have special construction features. The special, cut-resisting tread gives maximum protection against sharp, jagged rocks. And those wedge-shaped cleats protect the under tread, give equal traction in both directions and help prevent sideslipping.

For body protection, *double nylon shock shields* are used in all BFG Universal, Super Traction and Rock Service tires, sizes 11.00 and larger. The double nylon shock shield consists of 4 layers of nylon cords between the tread rubber and rayon cord body. These layers are in pairs; each pair is laid at scientifically determined angles with the other to give maximum strength . . . *double bruise protection.*

Under impact, the two nylon layers in each pair stretch *together;* return to their original position. Due to this action, impact is *distributed.* The tire absorbs it . . . the rayon cord body is shielded from tire-killing shocks.

Only BFG gives you the added protection of nylon shock shields . . . and the added savings which come from (1) longer tire life (2) increased number of recappable tires (3) increased bruise protection (4) less danger of tread separation. See your B. F. Goodrich Dealer or write to us direct. *The B. F. Goodrich Company, Akron, Ohio.*

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B. F. Goodrich

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now done in 3
with
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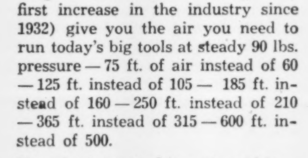
Model 600 — Runs 2 big 4" wagon drills at 90 lbs., drilling 30% to 40% more footage than you get with any 500 ft. compressor.



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ENGINEERING NEWS-RECORD

VOLUME 142   MARCH 31, 1949   NO. 13

WALDO G. BOWMAN
Editor

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Here's a case where engine power meant money. The smooth operation and high power of Northwest engine equipment and Northwest crawler equipment saved hours of time on this job at Davis Dam. Northwest ability to negotiate this 30° slope meant the difference of getting the machine on the new location quickly or a 3 mile trip.

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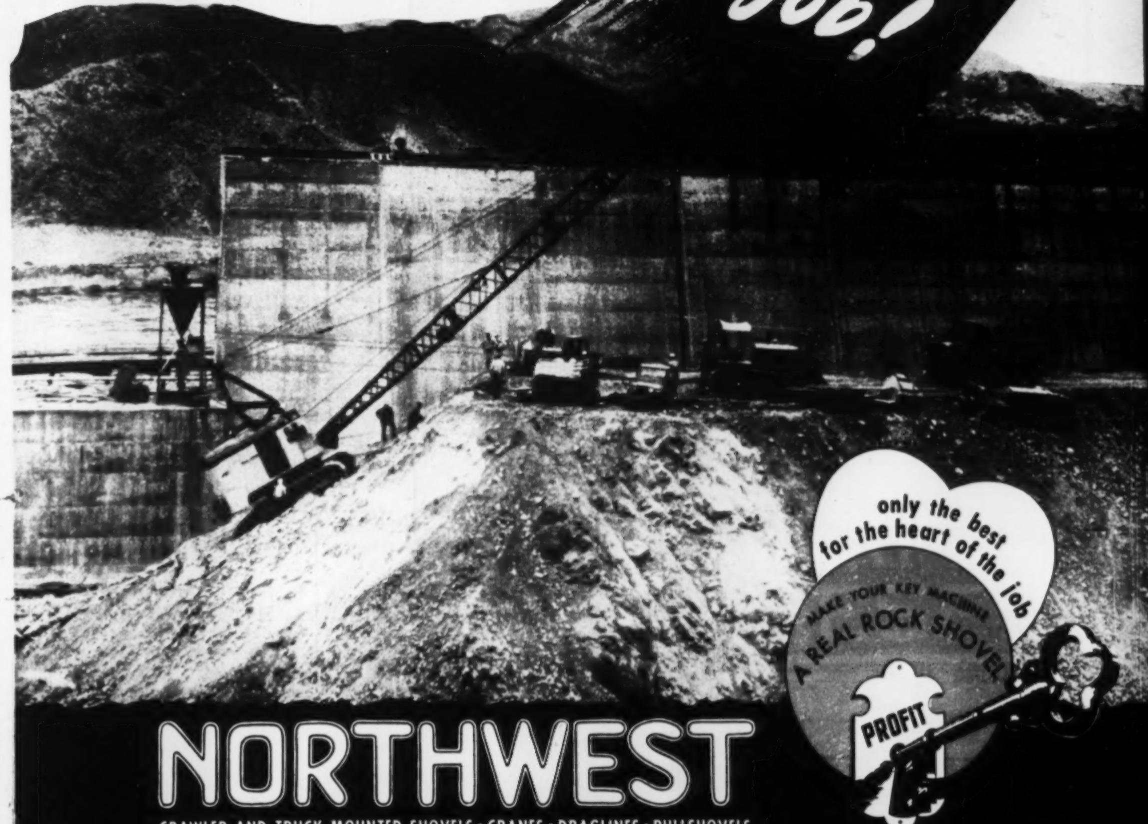

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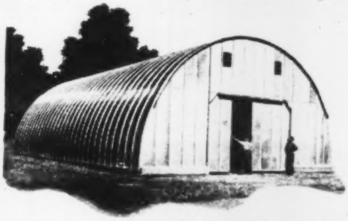
Noralyn Phosphate Mine of International Minerals and Chemical Corporation, near Bartow, Florida. Reynolds *Lifetime* Aluminum Industrial Corrugated roofing and siding used on conveyor, tower and processing building. Installed by Guarantee Waterproofing Co., Atlanta, Georgia.

FLORIDA'S LARGEST PHOSPHATE MINE USES REYNOLDS *Lifetime* ALUMINUM INDUSTRIAL CORRUGATED

"ALUMINUM makes the best roofing and siding," says International Minerals and Chemical Corporation.

Reynolds .032" thick, extra-deep Corrugated has exceptional strength, is rust-proof and corrosion-resistant. Protective painting not necessary. Maintenance practically nil. In addition, aluminum's radiant heat reflectivity keeps interiors cooler in summer, more economical to heat in winter. Easy to apply over any purlin. Reynolds also manufactures all accessories for complete installations.

Reynolds engineers will gladly work with you on any new construction or building repair problems. Call on them. **Reynolds Metals Company,** Building Products Division, Louisville 1, Ky. Offices in 32 principal cities.



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All aluminum. Patented all-bolt construction. Basic unit 36' x 60', length variable by 6' sections. Wide choice of door and window arrangements.

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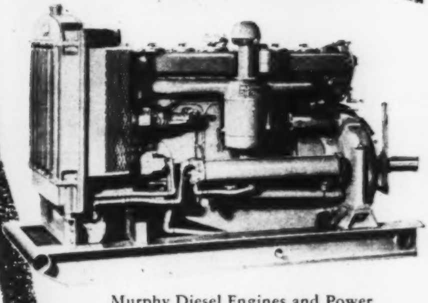
Profit by Lafayette County's experience!



2000 Tons of Crushed Rock Per Day on 66 Gallons of Fuel . . .

Lafayette County, Wisconsin, is proving daily that the best equipment pays for itself in reduced operating costs. The crushing plant illustrated above, for example, with a 90 H.P. (Cont.) Murphy Diesel on the primary and a 135 H.P. (Cont.) Murphy Diesel on the secondary, produces 900 cu. yds. of 1" material and 725 cu. yds. of ¾" material—a total of over 2000 tons—per nine hour day on only 66 gals. of economical diesel fuel!

Mr. Geo. E. Alderson, Commissioner of Lafayette County, says of the set-up, *"We are sure glad we have the two Murphys on our crushing plant and I can say you make no mistake when you use Murphy Diesels . . . I am sold on the set-up all the way through."*

MURPHY DIESEL COMPANY
5311 W. Burnham St., Milwaukee 14, Wisconsin

Murphy Diesel Engines and Power Units are available in sizes from 90 to 190 H.P.; Generating Sets from 60 to 116 K.W. All models are "True" Diesel Engines featuring the famous Murphy Unit Injector. Ask your Murphy Diesel Dealer for full details or write direct.

MURPHY DIESEL

Even on Jobs as tough as these

Texaco Marfak seals out dirt and moisture . . . reduces maintenance costs. That's why more than 300 million pounds of Marfak have been sold !

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Saturday afternoon.

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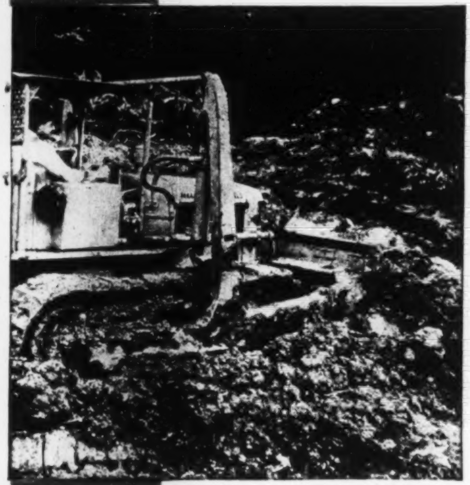

BULLDOZE wet, sticky mud . . . churn through desert dust and heat . . . no matter how extreme the conditions, chassis parts get greater protection and last longer when lubricated with *Texaco Marfak*. Maintenance costs are lower!

Texaco Marfak stays in the bearings. It won't work out in rough service or under heavy loads. Ordinary road splash won't wash it out. *Marfak* forms a tough "collar" at the edge of a bearing, sealing itself in and sealing out dirt and dampness. It keeps moisture off metal, protects against rust. And because it's long lasting, fewer applications are needed.

In wheel bearings, *Texaco Marfak Heavy Duty* assures similarly *long-lasting* protection and worthwhile reduction in maintenance costs. *Marfak Heavy Duty* also seals out dirt and moisture, seals itself in, and protects against rust. It won't leak onto brakes . . . requires no seasonal re-packing.

OTHER LUBRICANTS FOR FURTHER PROTECTION

Keep Diesel and heavy-duty gasoline engines clean by lubricating with *Texaco Ursa Oil X***. This is a fully detergent and dispersive oil, made to assure trouble-free operation, maximum efficiency, minimum fuel costs.

Protect track rolls from dirt and moisture with *Texaco Track Roll Lubricant*. It seals out contaminants, assures longer bearing life.

Let a Texaco Lubrication Engineer tell you about Texaco's Simplified Lubrication Plan to assure more efficient and economical performance from all your equipment. Just call the nearest of the more than 2300 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 E. 42nd St., New York 17, N. Y.

Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

For getting material "w-a-a-y up thar" **on a construction job**

Gone is the expensive hard work of getting material "w-a-a-y up thar" on a construction job. This BAY CITY Model 180 CraneMobile with boom and jib *makes a tough job easy* while handling pier forms on a bridge project for Crane Service & Equipment Co., Somerville, Mass. There's power, speed, mobility and maneuverability in a CraneMobile... plus big lifting capacity! From material handling to erection, the CraneMobile will *do the work faster, easier,* with bigger black figures on the profit sheet. For full particulars, see your nearest BAY CITY dealer or wire direct.

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Base your bidding on big pay yardage. Fit International Tractors and matched earthmoving equipment into your planning and reduce the downtime on your jobs. Rugged Internationals are built to carry on, hour after hour, day after day at minimum cost for fuel, lubricants and maintenance. And because they are backed up by a nation-wide, localized service organization, you have assurance of long-term satisfaction from Internationals.

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Everything you need for HIGH SPEED LOW COST PAVING

BLAW-KNOX Precision Subgrader

The only machine that will produce a perfect grade, true to crown and cross-section through the hardest material. The Blaw-Knox Precision Subgrader is the answer to all these problems:—Accurate control of slab thickness; smooth, uniform grade; reduced overrun of concrete; a minimum of handwork and adjustment; high capacity to keep ahead of pavers; lower cost of the most expensive type of excavation.

BLAW-KNOX Finishing Machine following a BLAW-KNOX Spreader

These two units make a combination that will give you lowest-cost, minimum of manual operation and highest quality of concrete paving construction for roads and airports, regardless of the type of mix. This modern paving combination will handle the output of two dual-drum pavers to give you record-smashing production.

Paving Forms for Roads and Airports

Aggregate Batching Plants

Steel Street Forms

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Subsidiary of Blaw-Knox Co.
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BLAW-KNOX!

How would you do this job? Here is the MultiFoote High Lift Boom. Look how clean the job is and run over in your mind the equipment this paver is replacing by pouring direct to forms. The High Lift Boom really cuts your concrete handling costs.

NOW you solve your concrete problems all the way from rough subgrade to finished slab with one complete line of paving equipment. One manufacturer—one responsibility—Blaw-Knox gives it to you in one package.

Take the Big MultiFoote DuoMix 34-E. There's a powerhouse of a double drum paver that you can count on to keep ahead of the rest of the high-speed Blaw-Knox line.

Its high operating platform permits full vision without the operator having to do a dance to see both ends and the middle. The Rotary Transfer and Rotary Discharge mean greater speed in the place where speed can be increased. The Multi-Feed Bucket delivers a shovelful or a barrowful. These and other MultiFoote advantages all mean higher speed, better control, easier upkeep and in the end—profit.

There are more MultiFoote Pavers in service than any other make. There must be a reason!

Specify MultiFoote and Blaw-Knox Paving Equipment

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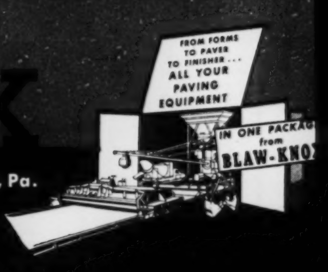
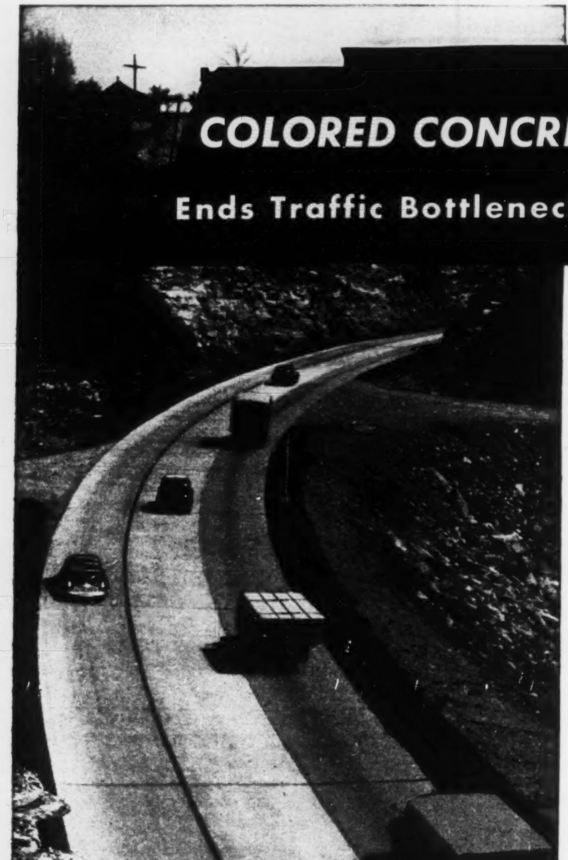
BLAW-KNOX DIVISION OF BLAW-KNOX CO., Farmers Bank Bldg., Pittsburgh 22, Pa.
New York • Chicago • Philadelphia • Birmingham • Washington


FROM FORMS TO PAVER TO FINISHER ... ALL YOUR PAVING EQUIPMENT
IN ONE PACKAG
from
BLAW-KNO



COLORED CONCRETE TRUCK LANE

Ends Traffic Bottlenecks on Hills

On two-lane highways in rolling terrain slow-moving trucks and busses often back up traffic and cause serious bottlenecks that greatly reduce the capacity of the highway — as much as one-third where 20 per cent of the traffic is commercial vehicles. Moreover, these irritating delays at times lead to accidents when impatient drivers try to pass on the hills.

Two-lane highways can handle larger volumes of traffic *with safety* when a third, colored, lane is added on upgrades. That is what Tennessee highway engineers did in 1940 when relocating a two-mile section of U. S. 31W north of Nashville. They colored this extra lane red to channelize slow-moving vehicles, leaving the two regular lanes free for faster cars.

"The use of these colored third lanes on grades has been so successful in reducing congestion and accidents on hills," reports William Rees, Engineer of Surveys and Design, Tennessee State Highway Department, "that we are now planning several other similar installations. Including sections now being planned, this will give Tennessee 10 miles of this modern, safety-designed, colored third lane on hills."

The colored third lane is obtained at small additional cost by building the top 2-in. course of the pavement with colored concrete.

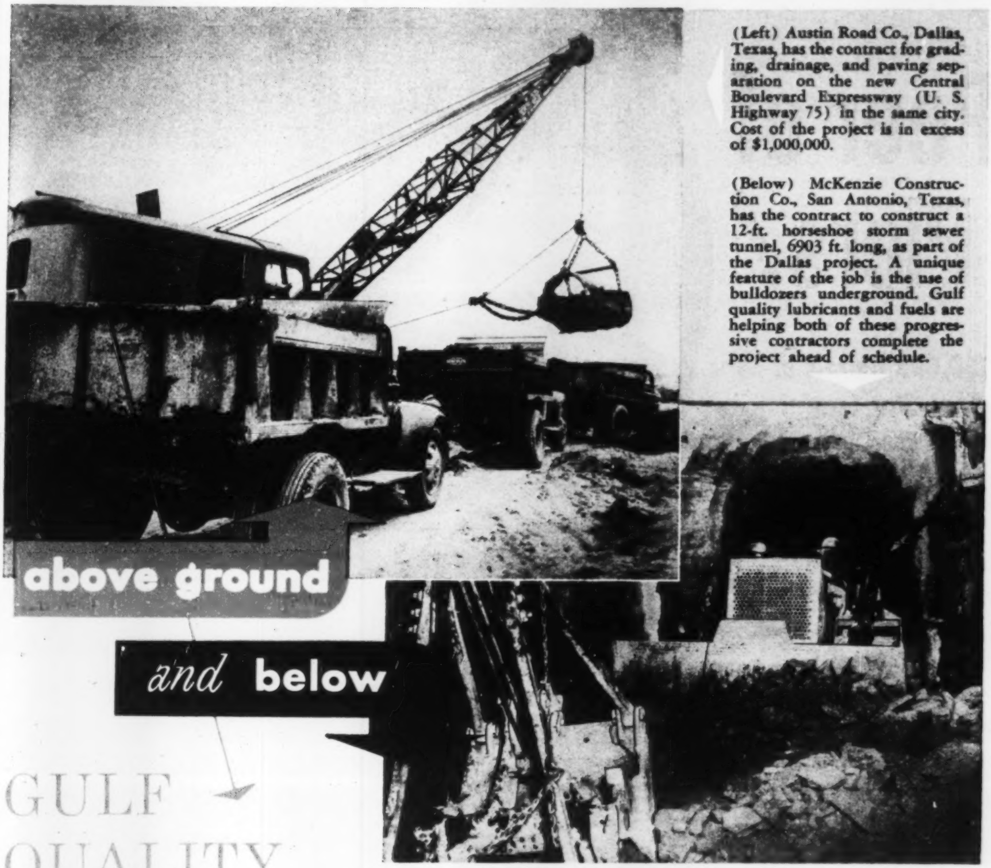
Other states have found that colored lanes enlarge the capacity and increase the safety of roads when used on upgrades or as acceleration or deceleration lanes on expressways. A bulletin on colored concrete pavement is available free. Write for your copy today. Distributed only in the United States and Canada.

●

Photo of U. S. 31W near Nashville shows passenger cars passing slow-moving traffic on colored lane. All lanes are 11 ft. wide and 8"-6"-8" in cross section.

PORTLAND CEMENT ASSOCIATION
Dept. A3e-17, 33 W. Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . . through scientific research and engineering field work



(Left) Austin Road Co., Dallas, Texas, has the contract for grading, drainage, and paving separation on the new Central Boulevard Expressway (U. S. Highway 75) in the same city. Cost of the project is in excess of $1,000,000.

(Below) McKenzie Construction Co., San Antonio, Texas, has the contract to construct a 12-ft. horseshoe storm sewer tunnel, 6903 ft. long, as part of the Dallas project. A unique feature of the job is the use of bulldozers underground. Gulf quality lubricants and fuels are helping both of these progressive contractors complete the project ahead of schedule.

GULF QUALITY PRODUCTS keep contractors' equipment rolling!

On all types of construction projects, Gulf Quality Lubricants and Fuels play an important part in keeping equipment on the job—and operating efficiently.

Engineered into Gulf lubricants are greater stability and endurance—they stand up and provide better protection for contractors' equipment under all types of operating conditions. Mud or dust—hot or cold, Gulf lubricants insure top-notch performance and help prevent mechanical delays.

Gulf gasoline and Diesel fuel are clean burning, have exceptionally low carbon content, and contribute to more efficient power.

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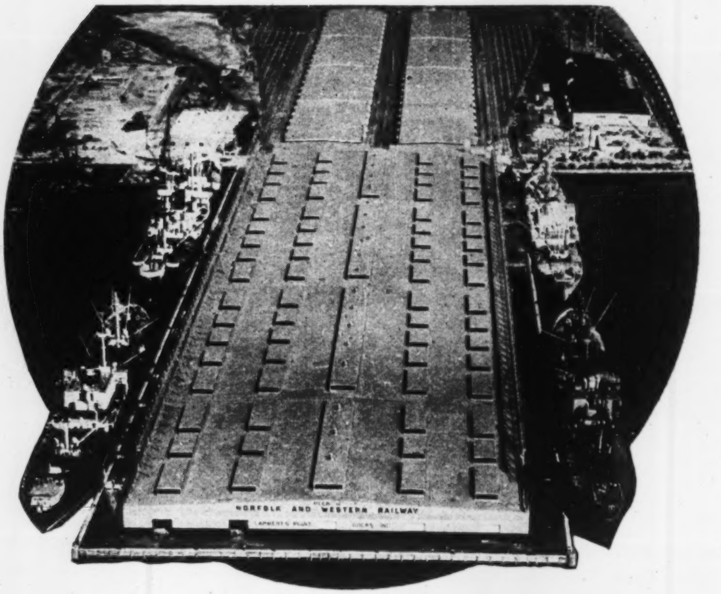
100,000 Barrels of Lone Star Cement used in Norfolk & Western's great new pier, largest of kind on Atlantic Seaboard


NORFOLK AND WESTERN RAILWAY
LAMBERTS POINT DOCKS INC.

THIS great new $6-million pier has ten acres of over-water area. Four large freighters can load or unload at one time. Six tracks serve the pier, two within the shed, and two on each of the 35-ft. aprons on either side. Quality construction matches mechanical efficiency. Nearly 70 miles of concrete piling, cast at job site, support the structure. The pier deck is a 9-in. concrete slab, with drop panels at pile heads and 7-ft.-sq. footings at warehouse columns. Deep concrete girders and beams support center tracks and aprons. *Quality concrete with the durability needed to meet rugged exposure conditions adds a further dimension to the outstanding service for which the Norfolk & Western Railway is noted.*

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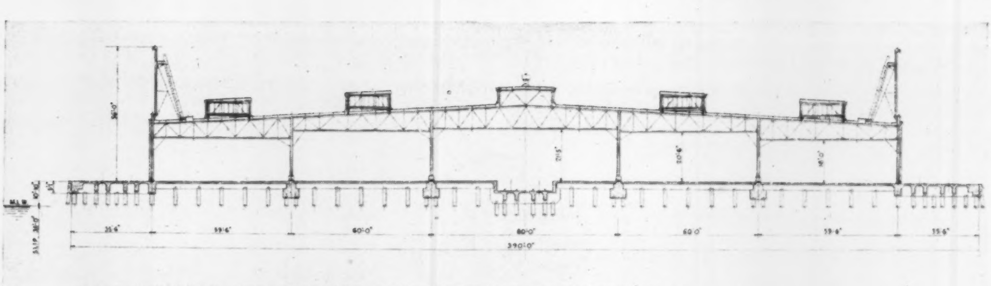
LONE STAR PORTLAND CEMENT
'INCOR' HIGH EARLY STRENGTH PORTLAND CEMENT
"INCOR"
LONE STAR AIR ENTRAINING PORTLAND CEMENT
LONE STAR MASONRY CEMENT

NORFOLK AND WESTERN RAILWAY'S PIER 'N'
LAMBERTS POINT TERMINAL, NORFOLK, VA.

General Contractor:
McLEAN CONTRACTING COMPANY, Baltimore

Designed and Supervised by:
ENGINEERING DEPARTMENT,
NORFOLK AND WESTERN RAILWAY


36'-0"
M.L.W.
10'-10"
SLIP 36'-0"
21'-6"
20'-6"
16'-0"
35'-6"
59'-6"
60'-0"
80'-0"
60'-0"
59'-6"
35'-6"
390'-0"

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CONSTRUCTION TRENDS

Ten Years' Growth

Has construction kept pace with the U. S. economy? Since 1939 the country's economy has expanded rapidly. How does construction, including homebuilding, stand compared to the sweeping gains in the general economy?

The table at the right shows what has happened. Between 1939 and 1948:

> The national income increased 209 percent while the total volume of construction put in place gained 180 percent.
>
> Non-farm employment increased almost 25 percent while construction employment went up almost 80 percent.
>
> Industrial production, measured in terms of physical volume by the Federal Reserve Board Index, gained 76.1 percent. There is no comparable index for construction as a whole, but the gains in employment, cement consumption, and number of non-farm housing units started indicate that the physical volume of construction, including homebuilding, has also gained substantially.
>
> **Construction made up 8.7 percent of the national income in 1939 and only 7.9 percent of it in 1948. Shortages of materials and workers alone may account for the lower percentage in 1948. However, in both years construction's share was less than it averaged over the twenty years 1920-40. Then construction averaged just under 11 percent of the national income. In some years it ran above 13 percent.**

Overall, these figures indicate that construction is very close to being in step with the general advance since before the war. But there are some interesting differences, particularly in heavy engineering construction.

The total number of contractors operating in the two years, as recorded by Engineering News-Record, is almost the same. And the number of heavy engineering projects has actually dropped 22 percent.

This indicates that shortages of equipment, materials, and workers have kept the number of new contractors down. On the other hand, the ENR Construction Volume Index shows an increase of 20 percent. That means that the size of the average project, and the dollar volume of work handled by most contractors, are up sharply.

From now on—as equipment, materials, and labor come into easier supply—the industry probably can expect newcomers in the ranks of the contractors.

All in all, it is clear that construction is not yet making up as large a part of the nation's economic activity as it has in the past. Since 1945—while the country has seen its greatest peacetime boom—construction hasn't approached the peaks it reached in past booms.

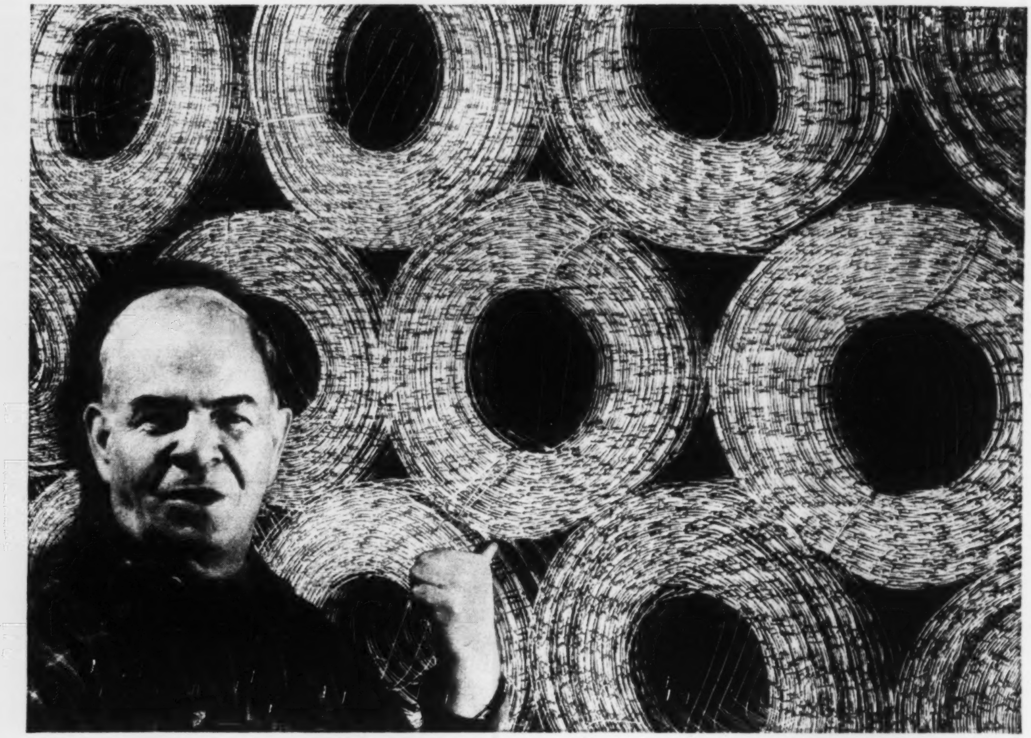
The postwar years, however, have seen construction limited by a series of shortages. With those shortages being whittled down by increasing production of steel, lumber, cement, and other materials, construction may well make up a larger share of economic activity. Moreover, the huge backlog of needs for construction indicate that many kinds of construction activity will still expand substantially. The Federal Works Administration, for example, estimates that our highway building program should be geared to cope with requirements for improvements totalling about $60 billion dollars.

In short, that means it will be sometime yet before construction can be said to have found a "normal" relationship to the economy as a whole.

FIGURES SHOW CONSTRUCTION'S GAINS

GENERAL ECONOMY	1939	1948	% Increase or Decrease
National Income (billions $)	72.5	224.4*	+209.0
Population (millions)	130.9	146.6	+12.0
Total Employment (millions)	45.8	57.1	+24.7
Industrial Production 1935-39 = 100	109	192	+76.1
CONSTRUCTION			
Total Construction Put in Place (billions $)	6.3	17.7	+180.1
Private	3.8	13.6	+258.0
Public	2.5	4.0	+61.5
Engineering Construction reported (billions $)	3.0	7.2	+140.0
Total Number Contractors on reported Engineering Construction (thousands)	6.2	6.3	+1.4
Number Projects (thousands)	19.0	14.9	−21.9
ENR Engineering Construction Volume Index	211	254	+20.0
Construction Employment (millions)	1.2	2.1	+79.1
Cement Consumption (Shipments—million barrels)	122.3	204.3	+67.2
Number of non-farm housing units started (thousands)	515	927	+80.0
Construction as a % of National Income	8.7%	7.9%	

Sources: Engineering-News Record
Department of Commerce
Bureau of Labor Statistics
Federal Reserve Board



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THE CONSTRUCTION WEEK

FUTURE FOR HOOVER PROPOSALS—Recommendations of the Hoover Commission for reorganizing the executive branch of the government are not going to be allowed to die on the vine. A national committee of prominent citizens is being formed to maintain grass-roots pressure on Congress to do something about the commission's proposals. Robert L. Johnson, president of Temple University, is to head the group.

STEEL ALLOCATIONS DOWN — June allocations of steel to U. S. industrial users may total one fourth less than the 600,000-tons-per-month now in effect under the voluntary program. Some products manufacturers—freight-car builders, for example—have not been consuming steel in the quantity allotted to them, and a reduction will release that much more steel tonnage to the free market. However, allocations of cast-iron (to heating and plumbing items that go into housing) won't be decreased.

FISH MAKE WAY FOR DAM—Chief obstacle to construction of the Pelton project on the Deschutes River in central Oregon (ENR Feb. 3, p.49) has been removed: the lower house of the Oregon legislature has killed a measure that would have made the river a fish sanctuary. The measure was sponsored by the state Fish and Game Commission, which is on record as opposed to construction of any high dams in tributaries of the Columbia, below McNary Dam. The Pelton project would be built by three private power companies, and would include a dam and power station near Madras, Ore.

SCIENCE FOUNDATION UP — President Truman apparently will get from the 81st Congress the kind of National Science Foundation he wants —after a couple of ill-fated tries with the 80th. The administration-sponsored legislation setting up such an organization passed the Senate last week, and is expected to have easy sailing in the House. The Senate bill provides scholarships and grants to students and institutions to finance research in engineering and the sciences—the program to be administered by a Truman-appointed director and a 24-member board of scientists. Two years ago, Mr. Truman vetoed a science foundation bill on the ground that his control over its administration would be limited. That bill would have made it necessary for him to name a director from a list prepared by the board of scientists, and would have given the board broad administrative power.

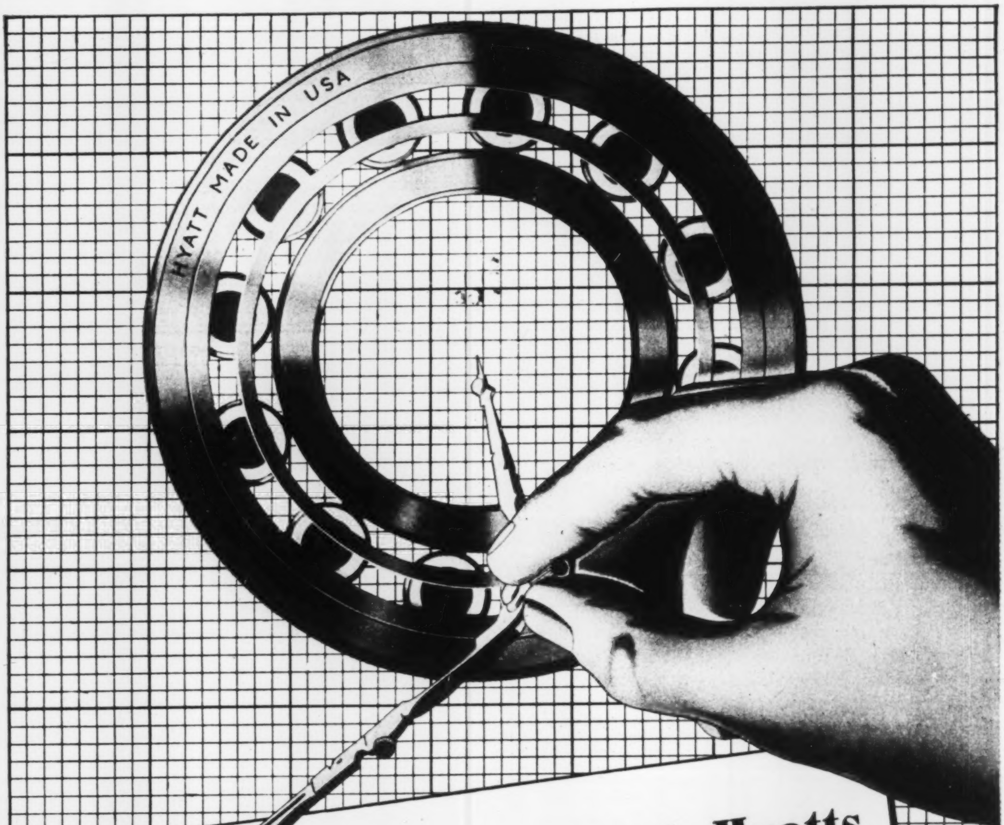
ALASKAN SURVEY—Visualizing an increasing tempo of development in Alaska, the North Pacific Division of the Corps of Engineers has started a comprehensive survey of power, flood control, navigation and other water problems and potentials of the territory. Although Alaska's population is still less than 100,000, Army engineers believe it is on the threshold of a large-scale industrial expansion—and at present it has only a total of 74,000 kw. of power. Announcing the survey, the Army was careful to note that its work won't duplicate work already done in the area by the Bureau of Reclamation.

WAGE-HOUR BLANKET SHRINKS—The wage-hour law isn't going to cover as many workers as was first thought. Administration leaders had to retreat a bit on this point, in order to get any revision at all in the existing 1938 law. So the new law will not blanket workers of all businesses that "affect" interstate commerce, but will only apply to those employers who are engaged in commerce or produce goods for commerce.

QUODDY AGAIN?—The Passamaquoddy power project to harness Maine tides is popping up again. Mr. Truman has okayed a $30,000 fund as the U. S. half of a joint U. S.-Canadian study to determine the cost of a full-scale engineering study. Canada, short of power, has already put up its half of the cost, and power-short Maine is also pushing for the project. Unlike the Roosevelt-urged project of the 30's, today's idea is to provide two tidal pools (instead of one) to generate considerably more energy on a 24-hr. basis.

LINE UP FOR LABOR BILL—Planning to regain the initiative in the Senate labor bill fight, Democrats now want to line up Southern moderates to sponsor amendments to the President's proposal, to counter the amendments sure to come from Taft and Ives. Leaders see the strategy as a way to fall back to prepared positions, by getting recalcitrant southerners to support provisions more acceptable to the unions than those put by the Republicans.

LAKE MEAD UP—Looking toward an 11,900,000-acre-ft. runoff—largest since 1940—U. S. engineers are predicting that Lake Mead, behind Hoover Dam, will rise 48 ft. by August. That would put the water to within seven feet of the dam's spillway crest.



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EDITORIALS

**ENGINEERING
NEWS-RECORD**

An Encouraging Sign

The vote in both the House and Senate on extension of rent controls indicates that a majority in Congress favor removing the restrictions at the earliest practicable moment. This is encouraging, for rent control is a political disease that can easily become chronic.

In France, after World War I, rent controls were imposed as an emergency measure, and have not, to this day, been removed. As a result, practically no rental housing has been built in France for three decades, and landlords have been compelled, from lack of revenues, to defer improvements and much necessary maintenance on existing structures. Such a situation must not be repeated here.

It has been proper to retain rent controls through the postwar period of housing shortage. Congress, before this, has shown an awareness of the owners' problems by permitting some increases in rents, and the new bill will allow some further increases. It may also permit states to decontrol their rents, when they think the time is ripe, and it looks forward to the end of federal controls in fifteen months. By that time, with materials becoming available and with construction costs receding, hardship cases of housing need should disappear entirely. Then will be the time (and it is here today in certain areas) when no artificial deterrents to the investment of risk capital in housing should be permitted.

Also this means that rent controls should be erased at the earliest practicable moment so that investors will once again find rental housing attractive. For neither owner-occupied houses nor public housing can come anywhere near supplying our total housing needs. The form that the rent control extension bill is taking indicates that Congress subscribes to this viewpoint. It is an encouraging sign.

A New Trend in Education

Two matters currently before the Engineers' Council for Professional Development may well be indicators of a new trend in engineering education. Since the war, ECPD has expanded its accrediting activities to include the curricula of technical institutes. More recently it has begun a study of the practicality of accrediting graduate courses in engineering.

The technical institute accrediting has two objectives; first, to strengthen the better schools, and second, to help them develop better training courses for men who have ability as technicians but who may lack either the financial resources or inclination to take a full engineering course. The exploratory study of accrediting graduate courses is an outgrowth of the great increase in this type of work and the need for guides as to the adequacy of the opportunities being offered by more and more schools.

If technical institutes are accorded a definite place in our educational system, that should make it possible to set higher standards for admission to engineering schools. It should also reduce the number of men who start to study engineering only to drop out when the going gets rough. Many of these men now end up frustrated in a technicians job instead of arriving there satisfied as the graduate of a technical institute.

At the other end of the ladder, greater emphasis on graduate work should make it possible to give a well rounded training in basic engineering work in four years, instead of stretching the courses leading to a bachelor's degree out to five or six years, as is now done in some schools or is being considered by others. Specialization could be left for graduate work by students with aptitudes for the higher training.

If what now appears only as a trend becomes a definite movement, marking off engineering from subprofessional work should be easier and there should be fewer misfits in engineering jobs.

Highways and Slums

City planners should give serious thought to FWA Administrator Philip B. Fleming's observations concerning the close relation between highways and slum clearance at the recent meeting of the American Road Builders Association. He said, in part: "The blight of residential areas is a civic malady serious enough in itself, but there are blighted industrial and commercial areas that call for curative treatment as urgently as any residential slums." General Fleming went on to point out that all these blighted areas were the result in large measure of changes in transportation facilities. Better transit facilities and automobiles have made it possible for people to live long distances from the places where they work in the heart of our cities, and congestion on streets and highways has compelled commercial and industrial plants to move out of downtown districts. Adequate arterial highways into cities, better streets and more facilities for off-street parking, he said, can reverse all these trends. And if the planning of streets and arterial routes is integrated with urban redevelopment plans, routes for new streets and highways frequently can be provided at relatively low cost through areas being cleared for such reconstruction work. The city planner or highway planner who sits alone in his ivory tower cannot possibly do an adequate job. They must join forces if a job of lasting value is to be done in urban redevelopment. Each must know what objectives the other has in mind, and each should bend his planning toward their attainment.

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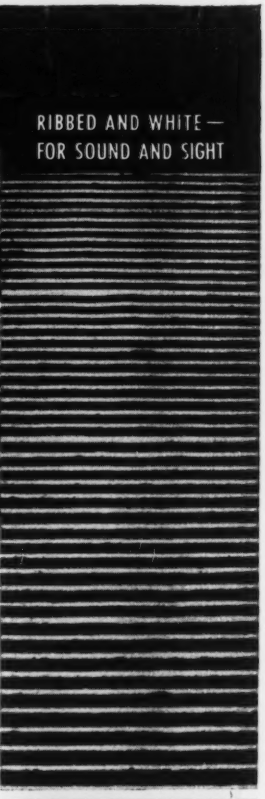

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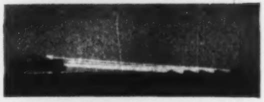
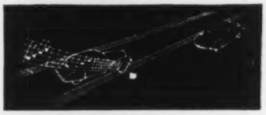


At night, corrugations catch headlight rays, reflect them back to the driver. On rainy nights, the film of water makes the concrete more mirror-like, when good visibility is needed most.



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ENGINEERING NEWS-RECORD

MARCH 31, 1949 VOL. 142 NO. 13

House committee reduces Army works fund 15 percent

House committee submits $178 million reduction in Corps of Engineers appropriation on strength of lowering costs, better bids—Ice Harbor Dam fund cut completely

The House Appropriations Committee last week recommended a 15 percent cut below budget requests for construction funds in the Army civil functions bill for fiscal 1950.

By making additional allowances for cash carryovers in the hands of the Corps of Engineers at the end of the current fiscal year, the committee came up with a total appropriation of $558 million for flood control and navigation.

This sum represents a reduction of about $178 million—actually 24 percent—from the budget estimate of $736 million. What the committee did was reduce the budget allotment by cash carryovers from 1948, then cut the remainder by 15 percent. In reporting its bill (H.R. 3734), the committee made clear that it was not guaranteeing a 15 percent saving in construction costs for fiscal 1950. If its hopeful estimate proves sour, it leaves the door wide open in its report by extending an invitation to the Army to come back during the fiscal year to ask for any additional appropriations that may be needed.

The House committee may not have given sufficient consideration to the fact that nearly three-quarters of fiscal 1950's construction money will be used to pay for continuing work on going jobs that were bid in at high prices—before bidders sharpened their pencils in expectation of declining costs and increasing competition.

Ice Harbor without funds

In a surprise move, the committee knocked out entirely the $12,000,000 appropriation request for Ice Harbor lock and dam on the Snake River. This $86,000,000 project was one of two Northwest power developments specifically recommended by President Truman in his budget message. The House Appropriations Committee approved initial funds for it only a month ago—in the first deficiency appropriation bill for 1949 (ENR Mar. 10, p. 14). The House passed that bill, but the Senate appropriations committee last week recommended that no construction money be spent on Ice Harbor.

Unless Congress takes a different view from that expressed by the two appropriations committees, no construction will begin at Ice Harbor this year or in fiscal 1950. The Corps of Engineers will recall its plans to advertise preliminary work contracts this spring (ENR Mar. 24, p. 15).

The ostensible reason cited by the committees for reneging on Ice Harbor is that the Bureau of the Budget will not allow any funds to be used for planning and construction of fish ladders in Columbia Basin projects above McNary Dam.

Reasoning behind the 15 percent reduction is partly sound and partly shaky, as already indicated. Justifying its shaving of the budget requests, the committee points out that the estimates did not take into consideration the decline in construction costs that began last October.

Since that time, the ENR index of construction costs have gone down 1.25 percent. More important, however, sharp competition and the prospect of declining costs has greatly reduced bid prices received by the Corps of Engineers in the last four months. The low bids for numerous jobs have been 15 percent under the engineers' estimates, and some projects have gone much lower—to as much as 50 percent below the estimate.

Reclamation also cut

In this respect, so far as their reasoning applies to new work, the committee members are on solid ground. Their weakness apparently lies in failing to consider the large volume of high-priced construction that will carry over into fiscal 1950.

The House Appropriations Committee is applying the same rule of a 15 percent cut in construction funds for all reclamation projects in the Interior Department bill for fiscal 1950. Except for this money reduction, the reclamation program is being approved in toto, including the Delta steam plant for the Central Valley project.

California picks parallel Bay bridge

The California Toll Bridge Authority last week approved the parallel "twin" bridge as the first structure to be built for relief of traffic congestion on the present San Francisco Bay Bridge. Only legal obstacle remaining is the obtaining of Congressional approval for using government-owned Yerba Buena Island for mid-bay foundations.

The five-man authority was unanimous in its vote for the bridge, which will parallel the present span about 300 ft. to the north. It had formerly announced that future overall planning called for construction of two crossings (ENR Nov. 20, 1947, vol. p. 699), one the parallel span and the other a causeway-tube crossing as recommended by an earlier Army-Navy board report (ENR Feb. 13, 1947, p. 3). A priority choice had to be made because of financing.

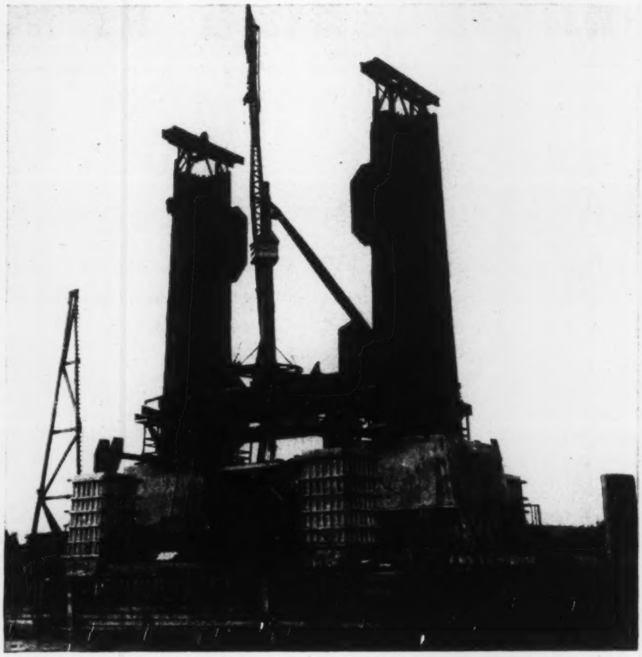
Last week's action by the authority authorizes the state's Department of Public Works to complete final detailed plans, financial negotiations and the acquisition of rights of way.

In announcing the vote, Gov. Earl Warren listed seven points which had a major influence on the decision. These were based on a report recently completed by the division of San Francisco Bay toll crossings of the Department of Public Works, under chief engineer Ralph Tudor (ENR Nov. 25, 1948, p. 39). Among the reasons cited were: Greater relief for present bridge, continuance of present 25-cent toll, earlier completion (probably by 1954), cheaper construction, less costly maintenance, and greater safety (traffic will be one way on each of the parallel bridges).

NEWS BRIEFS

Industrial Construction – Youngstown Sheet & Tube Co. plans to spend $16,000,000 on plants this year, mostly in the Chicago district. . . . Dow Chemical Co. of Canada will begin a $5,000,000 plant expansion program at Sarnia, Ont., during 1949. . . . The Southern Kraft Division of the International Paper Co. plans the construction of a $20,000,000 pulpwood processing plant at Natchez, Miss., for manufacture of rayon and allied synthetic products. . . . The Buffalo, N. Y., common council has approved re-zoning application of the National Aniline Division, Allied Chemical & Dye Corp., thus permitting the company to go ahead with its $15,000,000 expansion program. . . . Western Electric Co. has started construction of a plant in Indianapolis, Ind., which is estimated to cost $35,000,000. . . . The H. K. Ferguson Co., with offices in Houston, Tex., has been awarded a $3,000,000 contract for rebuilding the Norton Salt Co. plant at Grand Saline, Tex.

Public Construction–University of Kansas plans to erect medical center buildings in Kansas City, Kan., to cost $4,322,560 . . . Army Engineers have recommended a $4,537,000 system of flood walls and levees to protect Endicott, Vestal, Westover and West Endicott, N. Y. . . . A $15,000,000 building program has been outlined for the University of Toronto.



TACOMA NARROWS TOWER–Completion of this–the east tower of the new Tacoma Narrows suspension bridge–is set for April 10, when the west tower will be started. (ENR Nov. 11, 1948, p. 76). Traveling derrick will hoist itself through six 50-ft. stages. Temporary girders tie the tower legs together during erection. Falsework girders erected atop each leg will be used in lifting the derrick, then removed.

Hospitals—A $21,000,000 hospital improvement program is planned by Louisiana . . . Eventually $3,000,000 will be spent on a state-directed tuberculosis sanitarium for southeastern Florida at Lantana. Arnold Constr. Co., West Palm Beach, has the contract . . . The VA hospital at Louisville, Ky., will be a 9-story building with a penthouse. It will follow a model design for 500-bed hospitals, and will be on a 48-acre tract overlooking the Ohio River . . . More than $1,000,000 will be spent for a 100-bed hospital for the Mary Washington Hospital Assn. at Fredericksburg, Va. . . . The Alaska Native Service will open bids April 26 for a $10,000,000 reinforced concrete hospital at Anchorage, Alaska . . . Lankenau Hospital, Philadelphia, Pa., will build a $6,000,000 building on a newly-acquired site there . . . Community Hospital, Sunbury, Pa., has received bids of $1,416,936 for a new building . . . A $10,000,000 clinic covering 12 acres to be known as "The Medical and Surgical Clinic of Pittsburgh" is proposed for Pittsburgh, Pa. . . . Lockwood Greene Engineers, Inc., Spartanburg, S. C., has been engaged as architects-engineers on extensive enlargement and modernization for the Spartanburg General Hospital. The construction proposed is the first step towards a total of 479 beds.

Labor—Members of New London, Conn., Local 10, Bricklayers, Masons and Plasterers International Union of America have been granted a 40 cents-an-hour increase from $2.10 an hour to $2.50 an hour. The union had requested an increase to $3 an hour. . . . Union roofers in St. Louis, Mo., have been granted a 15 cents-an-hour increase, as of Feb. 1 . . . Plasterers and bricklayers in Dallas, Tex., have been getting $25 a day while negotiating with contractors for a permanent arrangement . . . A 2-year contract has been signed by representatives of the Indiana Limestone Institute and Stonecutters' Association of North America (AFL). It calls for a 12½-cent wage increase and vacations of from one to two weeks . . . The Granite City, Ill., AFL bricklayers have announced a 25-cent hourly wage increase over the former $3 an hour scale, with double time for Saturdays and Sundays . . . Representatives of 26 building trades in the Philadelphia, Pa., metropolitan area have presented new demands calling for another round of wage increases averaging 25 cents an hour. The Home Builders Association of Philadelphia and Suburbs to whom the demands have been made asserted that the demands if granted at a minimum would add $400 to the cost of the average home.

Correction—We are pleased to announce that the Health Sciences Center at the University of Washington, Seattle, and the Livermore VA Hospital, Calif., are still in their original surroundings despite our typographic transposition (ENR Feb 24, p. 20; March 10, p. 15).

(*Continued on* p. 58)

AREA celebrates golden anniversary, sees low income—high costs problem

Railway engineers see need to "do more with less"—Discuss engineering matters—F. S. Schwinn named president for 1949

A few harsh realities of the present intruded on the keynote theme—"A past of achievement; a future of opportunity"—of the American Railway Engineering Association when it celebrated its golden anniversary in Chicago recently. The railroads' low income and high costs, it was agreed, are both a problem and a challenge to engineers who must continue to strive to do more with less.

"Net operating income has not kept pace with the growth of railroads or the needs of the industry," said William T. Faricy, president of the Association of American Railroads, "despite great contributions of research, improvements in plant and facilities, striking gains in efficiency and magnificent efforts of engineers. And only increased earnings can enable engineers to effect further improvements to strengthen and improve rail transportation in the future."

In perhaps one of the frankest addresses to the convention, James H. Aydelott, AAR's vice-president in charge of operations and maintenance, called for a halt in governmental subsidies—direct or indirect—to the railroads' competitors. He also urged a moratorium on wage increases and material price rises, and warned of the railroad engineer's dim future should the industry's earnings be inadequate to support a progressive construction and maintenance program.

How to meet high costs

One of the best ways to meet high costs, said S. R. Hursh, assistant chief engineer of maintenance for the Pennsylvania Railroad, is by increased mechanization of maintenance operations. On the other hand, he warned of the false economy of using obsolete equipment. Construction and maintenance engineers must be ever alert to keep their machines operating at peak efficiency and must guard against excessive idle time. To reduce the latter, Hursh recommended adapting equipment to multiple uses.

T. A. Blair, system chief engineer of the Santa Fe, cited stabilization of roadbed as an important method of lowering maintenance costs. Savings in addition to direct labor include: elimination of slow orders; extension of tie and rail life; reduction in ballast requirements. Where all soft subgrade is grouted, Blair said, these savings will pay for the stabilization within two years. Rockwell Smith, AAR roadway engineer, blamed water as the primary cause of roadbed instability. Soils stabilization, he believed, will give the greatest return on the maintenance dollar. A committee report on the subject indicated that unstable fills have been successfully corrected by grouting, with grout acceptance running as high as 10 percent of the volume of fill. All recommended careful study of individual field conditions to determine the most economical method (sub-drainage, pole driving, sand piles, grouting, replacement of sub-grade, or the construction of supporting beams) of curing unstable sections.

Surveying the field of soil mechanics, Professor Ralph B. Peck, University of Illinois, forecast that railroads would become one of the main users of soils technology, and a fertile source of valuable soils information.

PRESIDENT INSTALLED – F. S. Schwinn, former vice-president of AREA.

J. B. Akers, chief engineer of the Southern Railway System, reported on the effect of diesel locomotives on fixed properties. While hastening the obsolescence of conventional roundhouses and shops (as they do not lend themselves to conversion for diesel maintenance), diesel operation eases track maintenance and reduces railway bridge stresses to about 60 percent of those produced by steam locomotives. Results of field investigations of impact effects on bridges were reviewed by A. D. Chapman, assistant chief engineer of the Milwaukee Road. On short spans, maximum impact was only 75 percent of the static stress; on long girder spans the AREA impact formula gave results well above those actually produced. Tests on through truss spans indicate that the top cord stresses are greater than calculated, while those in the lower cord are less.

Increased mechanization foreseen

Ralph Budd and H. R. Clarke, the Burlington's president and chief engineer, respectively, paid tribute to the engineers and AREA for the advances the railroads have made since the society's inception fifty years ago. But to take advantage of the multitude of new techniques and equipment available, Budd said, today's engineer must be even more alert than those who preceded him. Looking into the future, E. M. Hastings, chief engineer of the Richmond, Fredericksburg and Potomac Railroad predicted even greater mechanization and increased use of off-track equipment for construction and maintenance operations. Also, he foresaw a further advance toward the goal of a permanent track that will require far less frequent repair.

Officers named

Assistant chief engineers of three railways were installed as officers for 1949: Frederick S. Schwinn of the Missouri Pacific Lines as president; George L. Sitton of the Southern Railway System as senior vice-president; Henry S. Loeffler of the Great Northern as second vice-president. W. S. Lacher is secretary.

A feature of the anniversary meeting was an historical exhibit that traced the progress made in all phases of railway engineering over the past 50 years. A wealth of photographs illustrated the advances both in design of track and structures and in machines and materials to build and maintain them. Present-day work equipment and materials were on view at the concurrent show of the National Railway Appliances Association. Labor-saving devices ranged from small power tools and tampers to cribbing machines (for removing fouled ballast from between ties), tractors and scrapers. New units introduced included a grouter mounted on a converted wheel-type tractor, and an on- and off-track 7-ton crawler crane-excavator with its own rail car (which it propels through a take-off shaft) and a crane with narrow-gage crawlers and swing-stops for close-quarter work.

Sees no absolute safety from atom bomb

There is no such thing as absolute safety from effects of an atomic bomb explosion, and any "hysterical effort" to buy such safety is doomed to failure, U. S. architects heard last week.

Rear Admiral William S. Parsons, director of atomic energy for the Navy Department, told the American Institute of Architects meeting at Houston, Texas, that "any attempt to provide complete – necessarily underground – protection against atomic attack at close range would cost so much and interfere so greatly with normal living that it is unacceptable."

"The only alternative is to accept a calculated risk," the naval expert said. There is nothing unusual about such a compromise with fate.

"An atomic air burst will render useless almost any feasible above ground structure at a distance of about half a mile from the center of the burst. Beyond this range, structures which are designed to resist tornadoes, fires and earthquakes also begin to resist the blast produced by an atomic bomb.

"In my opinion, the sound approach to city and structure design is to continue to emphasize primary functions, and to add atomic blast and radiation flash to the list of natural and man-made catastrophies that may at some time be encountered."

Adm. Parsons' talk was a highlight of the four-day 81st annual meeting of the AIA, a meeting that featured the twin themes of "American Architecture of the Atomic Age" and "Fundamentals of Design". The latter theme–a continuation of the 1948 meeting theme–dealt largely with the use of color as a factor in design.

Other speakers on construction matters include Maj. Gen. Phillip B. Fleming, administrator of the Federal Works Agency, who detailed some of the efforts now being made by the federal government toward decentralization of its administrative headquarters. He told the architects that the U. S. is still in need of more advanced planning of public works, and of a larger "shelf" of prepared projects for use in possible slack periods.

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AEC chooses Idaho site for reactor test station

Arco, near Pocatello, Idaho, has been picked as location for the Atomic Energy Commission's proposed reactor proving ground (ENR Feb. 24, p. 12). Eventually, construction of this $500 million dollar annex to the Argonne National Laboratory in Chicago will require a force of 6,000 workers.

Located in the upper Snake River Valley the reactor testing station will, it is said, equal the Hanford, Wash., plutonium production plant in area. It will occupy a 400,000-acre site, 173,000 acres of which are now an inactive Navy proving ground.

About 2,000 employees will be required in the operation of the station, so homes, schools, streets and other community facilities will be provided in addition to the actual experimental installation.

Reactor development for all other AEC laboratories will be done there, and technicians will be trained there in the reactor development program.

Standards for determining where the nuclear reactors could be safely built have been established by AEC with the help of its reactor safeguard committee. Abel Wolman, professor of sanitary engineering at Johns Hopkins University, is a member of this committee. The commission's second choice for a site was the Fort Peck–Glasgow area in northeastern Montana.

In addition, the commission has made special seismological studies. All structures will be designed to resist such earthquake tremors as may be expected in the locality.

Security and safety requirements–plus space for possible future expansion–determined the size and location of the area. The choice of site also took into consideration the possibility of danger from a serious accident to the reactors. A reactor cannot create a bomb-like explosion; the rare chance of accident would come from sabotage or the remote possibility that the many safeguards and control mechanisms might fail simultaneously. No such failure has occurred since the first reactor was built in 1942.

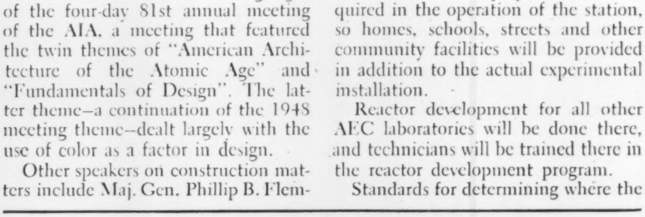
◆

Mayors hear pros and cons of immediate construction

At the United States Conference of Mayors, held in Washington last week, two opposing opinions were expressed on the deferment of public improvements. Speaker for the affirmative was Bernard M. Baruch; Robert Moses argued the negative.

In his address before the conference, Mr. Baruch urged the mayors to wait for world conditions to settle down before spending their construction reserves. Mr. Moses, present construction coordinator of New York City, maintained that construction projects cannot be "put off on the theory of an imminent war." Citing New York's need for a $500,000,000 Second Avenue subway, several schools and hospitals, and a $160,000,000 sewage disposal system, most urgently needed, Mr. Moses pointed out that the taxpayers were not going to be satisfied with awaiting settlement of the uneasy situation in Europe or elsewhere in the world.

Advice was given to the mayors by Maj. Gen. Philip B. Fleming, Public Works Administrator, to proceed with plans for slum clearance and traffic throughways. Congress has been asked to earmark at least half of next year's $450,000,000 highway fund for roads through congested cities in a resolution by the Conference of Mayors. At present 25 percent of highway funds go to city use.



UP IN SMOKE goes one of the Army's largest docks on the West Coast. This 1,000-ft. pier at Oakland, Calif., was razed in a spectacular fire earlier this month. Kerosene drums fed the blaze and damage was estimated at $1,000,000 (Wide World Photo).

Reorganization group urges changes in government business enterprises

Hoover Commission recommends unification of housing agencies, suggests financing system and differs widely on power distribution

In its report on Reorganization of Federal Business Enterprises—sent to Congress last week—the Hoover Commission recommends changes in both the structure and administration of government agencies that deal with money lending, housing and public power. The commission speaks with almost complete unanimity on the lending and housing functions. When it comes to power proposals, however, the group splits several ways and comes up with no majority recommendation.

On housing, the report advocates putting all related activities in one agency under a single administrator. To further the substantial progress already made toward unifying housing activities, the commission says, three additional functions should be placed in the Housing and Home Finance Agency.

It recommends the transfer to this agency of: (1) the home loan guarantee functions of the Veterans' Administration; (2) the Federal National Mortgage Association; and (3) the Office of the Housing Expediter. FMNA—more commonly known as Fannie Mae—is a subsidiary of the Reconstruction Finance Corporation; it functions as a secondary market for mortgage leaders who want to unload some of their FHA-insured and VA-guaranteed paper. The principal duty of the OHE is enforcement of rent control and of the veterans' preference requirement in sale or rental of new housing.

Mortgage discount banks asked

As an aid to the whole range of real estate financing, the commission makes an important suggestion: that Congress consider the creation of a system of national mortgage discount banks. Such a system, the report proposes, would furnish real estate discount facilities for private lending agencies over the entire real property field. It might include the present home loan banks.

The report sets out several reasons in support of the proposal. In times of stress, pressures on both savings institutions and commercial banks would be greatly reduced if there were a place where the savings groups could rediscount their long-term mortgage loans. Such a facility would give great strength to the whole banking and credit structure and would help the savings institution to continue mortgage lending during the period of distress.

For all of the government's lending agencies, the commission recommends that Congress review the power to make direct loans; that in non-emergency periods Congress should restrict direct loans to assure widest use of commercial channels by those seeking loans.

Split on power policy

On the government's electric power and irrigation enterprises, the report frankly states that the members of the commission have different views. Individual comments are contained in annexes to the report.

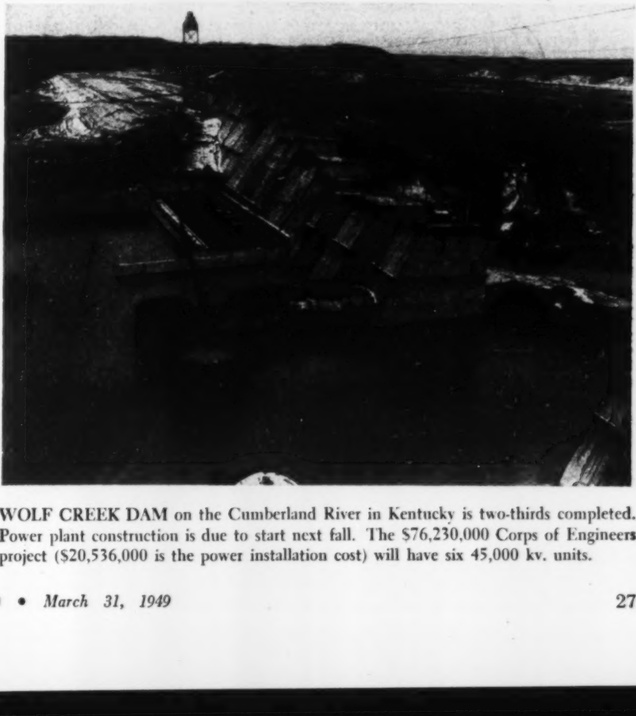
Chairman Hoover and four other commissioners—Arthur S. Flemming, George H. Mean, Joseph P. Kennedy and Clarence J. Brown—concur in one of these statements. In essence, they recommend that federal power projects sell their power at the bus bar to private companies for transmission. They urge that Congress consider for each case whether the transmission and distribution of power can be arranged under advantageous long-term contracts by selling the power at the generating point before deciding to authorize the construction of government transmission and distribution lines.

On the power question, the commission and its task forces departed from the group's own rule that it would stick to reorganization studies and avoid offering advice on policy. One of the commissioners, Sen. George D. Aiken of Vermont, takes sharp issue with two of the task forces in a statement printed with the report.

Sen. Aiken criticizes the two reports for assuming that public projects can be evaluated by the same criteria as private business enterprise. He charges them with total lack of understanding of the purpose of federal multi-purpose programs.

The two task force reports make some drastic recommendations on federal power policy. The Roberts report, for example, recommends as major considerations: (1) a return to the policy of requiring local contributions; (2) utilizing privately owned utilities to market the power from federal dams; (3) stopping—for the future—any building of thermal power plants to produce energy for sale; and (4) giving the states control of non-navigation uses of water at government reservoirs.

Vice-Chairman Acheson with two other commission members—James K. Pollock and James H. Rowe, Jr.—also entered a dissent to the business enterprises report in a separate statement.



WOLF CREEK DAM on the Cumberland River in Kentucky is two-thirds completed. Power plant construction is due to start next fall. The $76,230,000 Corps of Engineers project ($20,536,000 is the power installation cost) will have six 45,000 kv. units.

Bargaining units testify on labor law

Independent bargaining units claiming to represent 10,000 engineers recently followed the Engineers Joint Council in defending the Taft-Hartley Law's recognition of special bargaining requirements for professional employees.

A statement asserting that the Taft-Hartley's treatment of professional workers – giving them the right to choose the type of bargaining unit they prefer—"is essential to the furtherance of proper and advantageous collective bargaining among all engineering groups in the country" was given the House labor subcommittee on labor law revision by John M. Brumbaugh.

Mr. Brumbaugh is past-president of one of the 12 certified independent unions or bargaining units of engineers for whom he spoke. He said there are roughly 6,600 engineers in the unions or units he represented, all of them certified by the National Labor Relations Board. A breakdown of these units plus those affiliated with labor organization appears below.

Several other bargaining units, with 400 engineers, requested similar representation, according to Brumbaugh, while nine additional independent units with about 3,000 members are known to share the same view. He estimated that an additional 6,000 engineers in non-certified or non-bargaining groups—making a grand total of 18,000—also concur in the support of the Taft-Hartley provisions on professionals.

By contrast, Brumbaugh said, the two organizations most strongly behind the administration's labor bill, which would drop the sections on professionals, represent not more than a total of 3,200 engineers. They are the AFL's International Federation of Technical Engineers, Architects and Draftsmen and the CIO's United Office & Professional Workers.

The position of the Engineers Joint Council, supporting retention of the Taft-Hartley rules on professionals (ENR Feb. 24, p. 9) repeated to the House committee after its earlier presentation on the Senate side, was attacked by Stanley W. Oliver, president of the AFL union.

Mr. Oliver, a member of the American Institute of Electrical Engineers, told the House committee that NLRB through its decisions had adopted a policy under the Wagner Act of grouping professionals separately from clerical and production workers. Thus, he felt, no legal provision was necessary.

He further attacked the eight societies participating in EJC as representing members who, for the most part, are employer engineers, consulting engineers, construction superintendents and the like, and therefore are not really covered by labor relations law.

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INDEPENDENT ENGINEER UNIONS OR BARGAINING UNITS CERTIFIED BY THE NATIONAL LABOR RELATIONS BOARD

Name and Company Employing	Approximate Enrollment
I Eastern Conference Committee of Independent Engineering Organizations:	
1. Council of Western Electric Technical Employees, Kearney, N. J.	1,520
2. Engineers Assn., Sperry Gyroscope, Hempstead, N. Y.	900
3. Assn. of Professional Engineering Personnel, RCA, Camden, N. J.	510
4. Assn. of Engineers & Engineering Assistants, G.E., Philadelphia	150
5. Bloomfield Westinghouse Assn. of Engineers, Bloomfield, N. J.	150
6. Assn. of Technical Professional Employees, Westinghouse Electric, Bloomfield, N. J.	30
II National Professional Assn. of Engineers, Architects, and Scientists, which includes:	
1. Southern California Professional Engineers Assn.	
2. San Francisco Area Group of Professional Employees.	
3. Sacramento Group of Professional Engineer Employees.	
4. Engineer's Guild of Oregon.	
5. Seattle Professional Engineering Employees Assn.	3,000 plus
III Minneapolis Federation of Honeywell Engineers	300
	6,560 Total

UNIONS AFFILIATED WITH AMERICAN FEDERATION OF LABOR OR CONGRESS OF INDUSTRIAL ORGANIZATIONS

I International Federation of Technical Engineers, Architects and Draftsmen (AFL)	....
II United Office and Professional Workers (CIO)	....
	3,200 Total

Court order clouds status of bidding surety bonds

A recent U. S. Supreme Court decision that permits the federal government to take account of debts owed to it by a defaulting contractor has seriously clouded the position of companies bonding bidders, members of the National Association of Surety Bond producers heard recently.

Meeting in New York City, the surety company representatives heard a series of talks on the construction industry.

Commenting on the effect of the Supreme Court decision, Ray Murphy, general counsel for the Association of Casualty and Surety Companies said that the court's action in the case of the United States vs. Munsey Trust Co. might be "seriously adverse" to the rights of the surety companies.

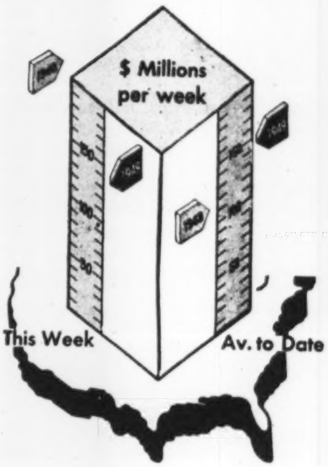
"For many years," Mr. Murphy said, "the surety companies, in fixing their premiums and in their underwriting considerations, relied on what they considered to be a certain fact . . . that the specified contract price would be paid as provided by the contract, and that if the surety at any time were obliged to perform or complete performance of the contract . . . the portion of the contract funds remaining in the hands of the one for whom the contract was performed would be available for reimbursement of the surety.

"But, by reason of the Munsey Trust decision, the federal government has been able to set off against percentages of the contract price retained by the government . . . debts owed by the defaulting contractor to the government. In the Munsey case, these debts were independent of . . . and did not arise from, the particular contract concerned.

"Unless something is done—either by legislative or court action—to correct the assumption in the Munsey case," he said, "the effects will be seriously adverse to the rights of the surety companies."

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Mar.'49	474.80	228.24
Building Cost	Mar.'49	352.47	190.54
Volume	Feb.'49	255	112



Activity This Week

As reported to ENR

in millions of dollars

Amount of contracts let

	Week of Mar. 31 1949	Cumulative 1949 (13 wks.)	1948 (14 wks.)	% chge av.wk.
Federal ...	$7.7	$313.0	$320.8	+ 5
State & Mun.	39.3	611.6	530.7	+24
Total Public.	$47.0	$924.6	$851.5	+17
Total Private	85.1	947.8	792.0	+29
U. S. Total	**$132.1**	**$1,872.4**	**$1,643.5**	**+23**

Contracts by type of work

	This Week	Cumulative 1949 (13 wks.)	1948 (14 wks.)	% chge av.wk.
Waterworks.	$2.1	$34.8	$42.6	−12
Sewerage ..	2.8	48.3	44.4	+17
Bridges	4.1	87.9	80.8	+17
Highways ..	13.8	127.2	189.5	−28
Earthwork, Waterways.	8.1	168.4	147.8	+23
Buildings,				
Public	13.9	401.7	291.8	+49
Industrial .	33.4	275.9	260.0	+15
Commercial	46.2	590.6	457.6	+39
Unclassified .	7.7	138.2	128.8	+15

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 1949 (13 wks.)	1948 (14 wks.)	% chge av. wk.
NON-FEDERAL..	$1,268.4	$875.5	+56
Corporate Securities	612.6	499.8	+32
State and Municipal	655.8	375.7	+88
Total Capital	**$1,268.4**	**$875.5**	**+56**

BRIDGING TURTLE RIVER—A 4,470 ft. crossing is under construction near Brunswick, Ga. Diamond Construction Co., Washington, D. C., and Savannah, Ga., has the $2,871,000 substructure contract. Concrete is poured at bent No. 6 by a 45 ton crane while a 70 ton crane at left places sheet piling for the cofferdam at bent No. 7.

Straus and Boke are still off payroll

Reclamation Commissioner Michael Straus and regional director Richard Boke—who have been serving without pay since Jan. 31—may have to continue in that status for some time. The Senate Appropriations Committee last week voted to keep them off the federal payroll pending further study of their cases.

This adverse action was taken during consideration of the first deficiency appropriation bill for 1949. As previously passed by the House, this bill contained a provision that would have restored the Straus and Boke salaries (ENR Mar. 10, p14). After the Senate acts on the measure reported out by its appropriations committee, the bill will go to conference for settlement of any differences. In the process, Congress might put back in the bill the repeal of the ban against the two reclamation officials.

Both men were marked for pay suspension by a rider that the 80th Congress last year attached to an appropriations bill. The rider required that engineers be employed in the two positions. Neither man is an engineer.

On three occasions President Truman has urged Congress to restore Mr. Straus and Mr. Boke to the federal payroll.

Principal congressional opposition to the two officials has come from Senator Downey of California. He has criticized their enforcement on the Central Valley project of a federal law limiting to 160 acres the size of farms receiving federal irrigation water.

The committee report went along with most other provisions approved by the House. It endorsed a $2,500,000 appropriation for the $54,000,000 TVA steam plant, as well as $20,000,000 for emergency flood control work required by heavy snows in the west.

The committee approved $5,400,000 for renovation and modernization of the White House. Congress indicated last week that it would act on President Truman's request that a special board of architects and engineers be authorized to supervise the work.

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Bid exceeds estimate by nearly $10 million

Maryland's State Road Commission rejected the bid submitted on the Chesapeake Bay bridge substructure.

A combine composed of the Arundel Corp., Merritt-Chapman & Scott Corp., and Raymond Concrete Pile Corp. made the proposal—$23,772,000. The Empire Construction Corp., of Baltimore, bid $2,100,000 on four lesser sections of the work.

J. E. Greiner Co., consulting engineers for the State Roads Commission had estimated in October, 1948, that the entire structure would cost $36,370,000. Bids made and contracts let to date indicate that the final figure will approach $47,000,000.

H. H. Allen, of the Greiner Company, recommended that the proposal be rejected. Action by the commission followed this recommendation.

Flexible technical approach seen best solution for stream pollution problem

Sanitary engineers attend first in-service training classes at University of Michigan—Speaker denounces specific stream regulations

The best way to cope with industrial wastes for abatement of stream pollution is the adoption of a flexible technical approach, unhampered by specific regulations and carried out by pooling special skills and know-how.

Such an approach—backed up by tact, good faith and good will of both industry and state officials—will go much further toward the solution of industrial waste problems than adoption of any arbitrary, rigid stream standards on a state wide basis, according to L. L. Hedgepeth, technical consultant for the Calco Chemical Division, American Cyanamid Co., of Bound Brook, N. J.

Mr. Hedgepeth was one of the speakers before 116 top industrial technicians, municipal and sanitary engineers, and public health officials attending the first In-service Training Courses on sewage and industrial waste disposal at the University of Michigan, Ann Arbor, March 14-15.

Other stream-sanitation subjects discussed at the conference included: evaluation of analytical data; bacteriology, and chlorination of sewage and industrial wastes.

Stressing that the gap between pure statistics and their practical application is too great, C. J. Velz, head of the civil engineering department, Manhattan College, New York City, outlined the statistical method in simple fashion and demonstrated how it is applied.

Bacterial studies reported in most probable numbers (MPN) are actually of little significance, Prof. Velz said. Worthwhile results can only be obtained by calculating MPN's for a series of samples and determining true mean density (TMD)—the significant value—from the MPN's. TMD is defined as the total number of coliforms divided by the total volume of containing water.

Prof. Velz described how TMD is calculated analytically as well as graphically using MPN measurements.

Coliform indices

"Sanitary values of coliform indices depend to some extent on index level," said W. L. Mallman, professor of bacteriology and public health, Michigan State College, East Lansing. Low-index levels may or may not indicate sewage pollution and accurate interpretation of such indices depends on surveys as to sources of pollution.

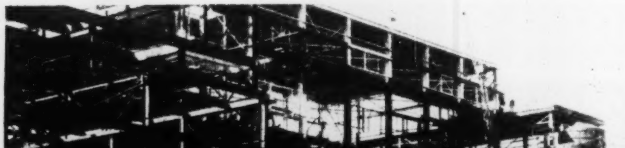
Coliform organisms may occur in unpolluted waters at high index levels if environment, food supply and temperature are favorable, Dr. Mallman declared.

Differentiation of coliform species appear to offer little value as measurement of sanitary significance because E. Coli can adapt itself to growth outside animal bodies, he said.

Calling for further investigation, Dr. Mallman pointed out that existing tests for streptococci are apparently valueless for sewage-polluted waters but development of new media for growth and identification may make this test useful. Azide dextrose broth, he reported, is the best medium devised to date for growth and identification of streptococci (entrococci).

Dr. Mallman concluded that the coliform index is still the "best biological method of measuring sanitary values of streams and lakes."

Research findings on bactericidal action of chlorine and chlorine compounds were outlined by E. W. Moore, associate professor of sanitary engineering, Graduate School of Engineering, Harvard University.



ALABAMA NEWSPRINT MILL—Steel erection nears completion for the Coosa River Newsprint Co.'s $30,000,000 plant at Childersburg, Ala. J. E. Sirrine Co., Greenville, S. C., is engineer, F. H. McGraw & Co. and Daniel Construction Co. are contractors.

Virginia orders residents to quit polluting streams

A new regulation was recently issued by Virginia's Water Control Board which will require "every owner" to file on May 1 and each 90 days thereafter a progress report on pollution abatement programs.

The regulation goes into effect April 1, and it applies to raw sewage only—not to industrial wastes. It is aimed principally at municipalities and will affect especially Alexandria and those Arlington and Fairfax county communities bordering on the Potomac River. Fairfax county empties its raw sewage—about 2,500,000 gallons daily—directly into the Potomac. Alexandria puts raw sewage into Hunting Creek and Four Mile Run.

Sisco appointed director of Engineering Foundation

Frank T. Sisco has been named technical director of the Engineering Foundation, effective March 1. The Engineering Foundation is a joint research agency of the American Society of Civil Engineers, American Institute of Mining and Metallurgical Engineers, the American Society of Mechanical Engineers and American Institute of Electrical Engineers.

Mr. Sisco is a graduate of the University of Illinois and for many years served in operating departments of various steel companies. He was for seven years chief of the metallurgical laboratory of the U. S. Army Air Corps at Wright Field, Dayton, Ohio.

USBR to open bids April 15 on Wash. irrigation works

Bids for building a 14½-mile section of the East Low Canal and the 6¾-mile Rocky Coulee Wasteway on the Columbia Basin irrigation project in eastern Washington have been called by the Bureau of Reclamation for opening April 15 at Coulee Dam.

The first section of the East Low Canal is now being built under a $3,977,000 contract. More than 86 percent of its 12.3 mile length is complete. The canal ultimately will be 130 mi. long.

Rocky Coulee Wasteway will take water from the East Low Canal and feed into the Potholes Reservoir, created by $9,000,000 O'Sullivan Dam.

Contracts for the concrete-lined canal section and wasteway, for which completion is scheduled in 900 days, call for 5,350,000 cu.yd. of excavation, more than 6,500 tons of reinforcing steel and 170,000 cu.yd. of concrete.

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Canadian provinces weigh engineering practice laws

Legislation affecting the practice of engineering has recently been in question in three of the provinces of Canada. In eight of the nine provinces which make up the Dominion, the practice of engineering is "closed" legally by provincial statutes under which the several Associations of Professional Engineers operate. (The small province of Prince Edward Island is the exception).

Recently, the Ontario act came up for consideration by the Ontario legislature, some minor amendments being requested. Strong opposition was voiced to the new requirement proposed on reinstating members who had fallen behind with their dues. The bill had to be withdrawn and an amended version was promised.

The Quebec act was under similar treatment at the same time. It is the oldest of all the provincial acts, and, as it is based on French practice, it refers to "ingenieur civil", which term is translated to the modern "civil engineer" even though it carries the original meaning of non-military engineer. When the bill for the revision of the existing act came up for review by the Quebec Legislature, the term "professional engineer" was suggested instead of the term "civil engineer" to make the act conform with modern usage.

The bill also introduced an amendment defining engineering, including reference to the design of buildings in the list of works for which engineering advice must be obtained. Strong opposition to this change was voiced by the provincial association of architects—the group which recently obtained a court judgment against a professional engineer who had designed a building, even though the building was found to be perfectly satisfactory structurally. Eventually, it was agreed that a special committee of the legislature should be set up to study the whole matter of professional legislation.

Meantime, in the west of Canada the Saskatchewan legislature amended the provincial engineering legislation and did include, in the list of works for which the engineer may be responsible, references to public buildings.

PERSPECTIVE . . .

Veterans and Seniority

Nearly four years after the end of fighting in Europe, the problem of seniority for war veterans is still plaguing employers and the courts.

Many employers are now laying off workers for the first time since before the war started, and this has resulted in many more inquiries from them to the offices of the Bureau of Veterans' Reemployment Rights. Employers want to get the last word on the job rights of war veterans under the wartime Selective Service Act.

The problem usually involves the veteran's seniority rights as against those of non-veterans.

In 1946, the Supreme Court decided that a veteran does not have "super-seniority," but is merely entitled to the protection he would have had if he had never left his job for war service. In a later decision the court added that the returned veteran could not upset a union contract under which he and his fellow employees were put at the end of a seniority list when their plant was merged with another. The court's view: There had been no discrimination against the veteran.

In general, lesser courts have followed these decisions. They have held that the veteran must not suffer by reason of his war service, nor must he benefit by it. He just gets back on the seniority escalator at the place he would have been if he had never gotten off.

However, some courts have found different elements in similar cases, and have come up with opposite decisions. The Supreme Court is now taking a look at one of them and its decision is expected soon.

This case involves the Lockheed Aircraft Corp. which signed a contract with the International Association of Machinists to give top seniority to union agents like shop stewards and committee men. The issue arose when some veterans were laid off while non-veteran union agents, with less seniority, were kept on the job.

The question: Could the union contract, made in the absence of the veterans, weaken their job rights?

The federal district court said no, and so did the Ninth U. S. Circuit Court of Appeals. But their decision was in direct conflict with that of the third U. S. Circuit Court in Philadelphia, which, in 1947, upheld a similar contract. Because of this conflict, the Supreme Court agreed to review the Lockheed decision.

A second point concerns the tenure of the veteran's protection of his job rights.

Both under the old and new draft laws, veterans must apply for their old jobs within 90 days after their honorable discharge, and they may not be discharged without cause within a year of their return.

This raises the question as to whether the veteran loses his protection after a year. For example, can the veteran be moved down on the seniority list after a year by taking away from his employment service records the time spent in war service? This answer is important today because most veterans have been back at their jobs more than a year.

The Bureau of Veterans Reemployment Rights takes the side of the veterans on this point, and is supported by two recent district court decisions. But just two months ago the Sixth Circuit Court of appeals at Cincinnati held that a veteran did not have protection after the first year, in a case brought against the Louisville and Nashville Railroad. The decision is being appealed by the Justice Department.

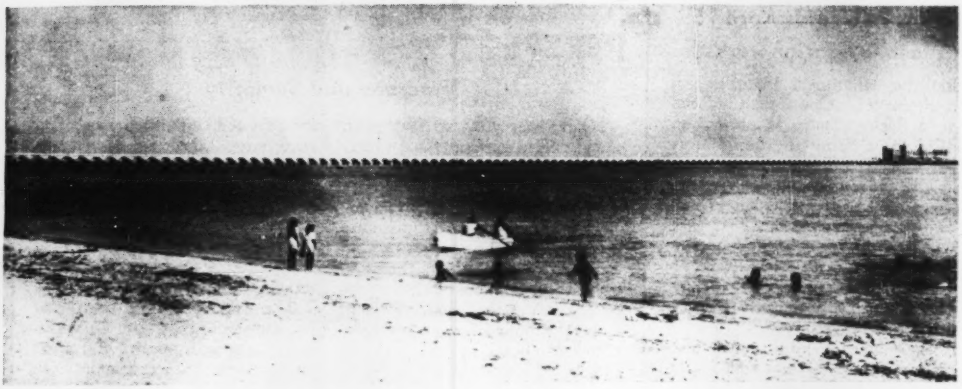


FIG. 1. A MILE-LONG concrete viaduct was required to put the pier head in deep water at Progreso, Yucatan, in Mexico.

Pier Built on Assembly-Line Principle

Henning O. Christiani
President, Christiani & Nielsen Corp.
New York

ASSEMBLY-LINE METHODS were applied successfully to construction of a long pier to reach deep water off the port of Progreso, on the north coast of Yucatan, Mexico. The many cylinders and arches of similar dimensions that were required made it practical to spend more money on the design of travelers and support structures than would have been possible in building a structure of lesser length.

Progreso is the principal port for the export of sisal hemp (henequen) as well as the main point of entry for imports to Yucatan. It lacks natural harbor facilities. The water offshore is shallow, the bottom being limestone rock covered with sand for a distance of 1,000 ft. There the water is only 12 ft. deep to rock, which has an outward slope of 1:1,000. An almost constant east-west current moves sand along the foreshore. Under these conditions, dredging to permit ships to come close to shore is out of the question.

During the past 50 years several piers about 1,000 ft. long were built to facilitate loading. They were chiefly of steel, which suffered badly from corrosion. Also, the longitudinal current deposited sand along the piers, reducing the draft at the outer end to 11 or 12 ft. at mean high tide.

By the middle Thirties, conditions had deteriorated to such an extent that most of the sisal had to be lightered out to ships anchored in the roads several miles from shore. This was most unsatisfactory, and in 1935 it was decided to build a new pier to suit the requirements of modern shipping. It was to accommodate ships with a draft of 17 to 18 ft., was to be equipped with the necessary warehouses and cranes, and was to be accessible to both rail and highway traffic.

To obtain the required draft without dredging made a pier about 6,000 ft. long necessary.

Because a structure that could slow the coastal current would cause sedimentation of the suspended sand and silt and thus render the pier useless, it was necessary to choose a design that would permit the freest possible flow parallel to the coast.

The only construction material available was the rather porous limestone in the bed rock. Previous experience had shown that in the warm and humid climate concrete made with this stone as an aggregate was incapable of protecting embedded reinforcing steel adequately against corrosion. It was, therefore, decided to use mass concrete for both substructure and superstructure.

After several possibilities had been investigated, the design shown in Fig. 2 was adopted.

Details of the viaduct

The viaduct is 30 ft. wide and consists of stone-filled arches, each with a span of 39 ft. 6 in., supported by bents composed of two concrete cylinders spaced 17 ft. apart and connected by a heavy crossbeam. Every sixth bent is of special construction designed to resist the thrust that would occur if one or more arches were destroyed.

No reinforcing was used except in the crossbeams, where 1-in. rods were installed to prevent cracks from contraction of the concrete. These are of stainless steel as insurance against damage from corrosion.

To a level 20 in. below the top of the parapet walls, the arches were filled with broken stone of various sizes. On top of these was first placed a 3-in. thick layer of crushed stone and gravel thoroughly sprayed with road oil to prevent it from ever being washed into the consolidated fill below. On top of this base was placed a 9-in. thick layer of crushed stone 3 to 6 in. in diameter and rolled with a 12-ton tandem roller. This was covered again with a 6 in. thick gravel macadam pavement pitched towards the center of the road. Finally, the macadem pavement was surfaced with a 2 in. thick layer of sand asphalt.

The parapet wall was capped with precast concrete slabs in which the concrete lamp posts were set.

The south side of the viaduct is reserved for vehicular traffic, while the north side is used for a railway, with both standard and narrow-gage track. A concrete duct is provided for pipelines. Its cover acts as the sidewalk.

At the outer end, the viaduct is widened to 165 ft. for a distance of 670 ft. to form a pierhead on which a warehouse 500 x 75 ft. in plan and 42 ft. high was built. With certain

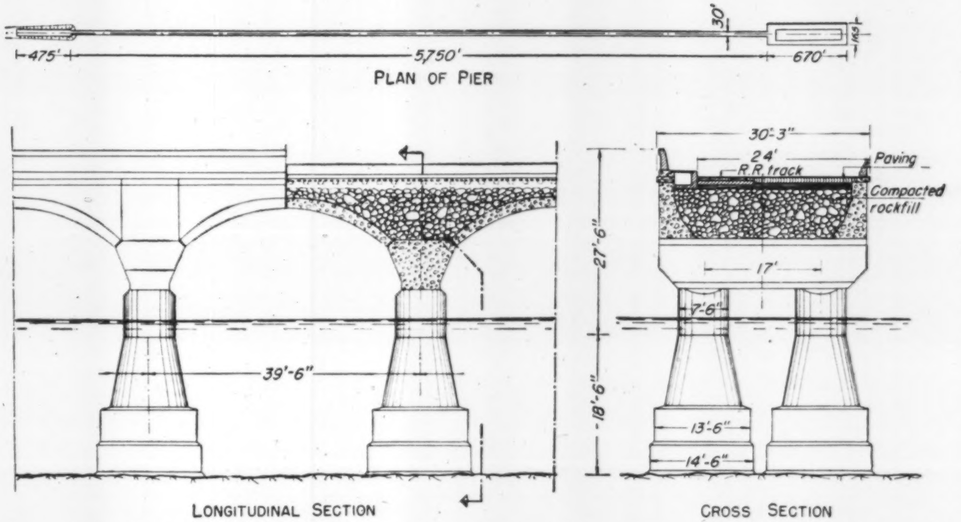


FIG. 2. THE VIADUCT is of unreinforced concrete, both the bents and arches. Every sixth bent has thicker cylindrical supports to provide stability in case of failure of an arch.

modifications, this pierhead was built as six viaducts side by side, with the span of the arches reduced to 24 ft.

Much repetition involved

Considering the great number of uniform elements that make up the structure—550 cylinders, 145 arches in the viaduct, 225 arches in the pierhead—a good deal of thought was devoted to the question of the most practical method of organizing the construction work. The principal points for consideration were the following:

1. That the forms should be used as many times as possible.
2. That work might be carried on simultaneously on all parts of the structure.
3. That work which required skilled labor such as mechanics, carpenters and divers should be reduced to a minimum.
4. That to avoid hazards resulting from wind, wave and current, work should be done from platforms suspended well above sea level and no floating equipment should be used.

These considerations led to the solution shown in Fig. 4 with the two movable platforms, "Traveler I" and "Traveler II," as the main feature. These platforms were supported by the part of the structure already built and could be moved forward as the work progressed.

Traveler I was used for work on cylinders and crossbeams and was provided with the necessary gear for assembling and placing of forms, concreting under water and stripping of forms after the concrete had hardened. Traveler II served as a working platform for all work on the arches, parapet walls and stonefill. The main mixing plant was located thereon. All materials were transported by narrow-gage railway from a yard on shore where the crushing plant, cement storage, machine shop and similar facilities were located.

Except as noted subsequently, the sequence of operations, in general outline, was as follows: Traveler I was moved forward until its outer end, supported by cantilever action, was over the next bent to be placed. Four supporting legs, which also served as guides for placing of the forms, were lowered to the sea bottom and braced while, at the same time, exact soundings were taken. In the meantime, steel forms for the cylinders and beams were assembled on the deck of the traveler by means of gantry crane.

These cylinder forms were divided into an upper conical part and a lower cylindrical skirt connected to the conical section in such a way that the necessary adjustments for depth could be made. Both the conical part and

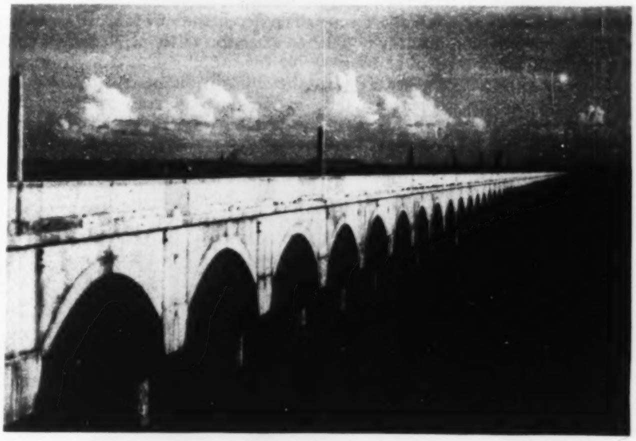


FIG. 3. LOOKING FROM THE PIERHEAD toward the shore over the shallow water underlain by limestone rock that made the long pier necessary.

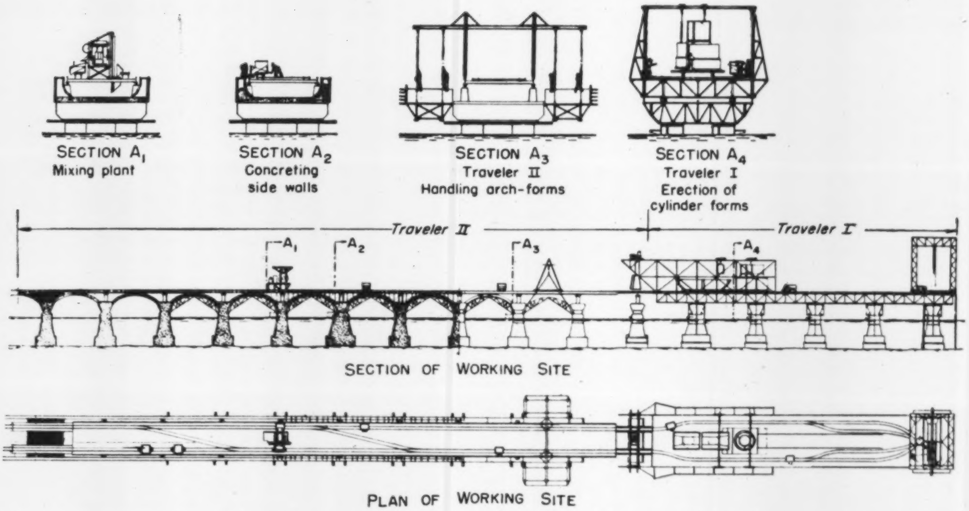


FIG. 4. ASSEMBLY LINE METHODS were applied to construction of the viaduct because of the large amount of repetition of details. Two travelers were employed, one to build the cylindrical supports and one for arches and spandrel walls.

the skirt were divided into three sectors of 120 deg. and assembled with a few heavy brass bolts

From the 14th to the 63rd bent, one skirt 4 ft. 9-in. high was used. From the 64th bent there was used an additional skirt 3 ft. 10-in. high. This permitted a total variation in the height of the concrete cylinders from 16 ft. 5 in. to 25 ft. The heavier supports constructed at every sixth bent required special extra strong steel forms with elliptic cross sections. The elliptic forms were divided into conical sections and skirts in the same manner as were the cylindrical forms. To make the removal easier, the elliptic forms were divided into four sectors of 90 deg. each instead of three of 120 deg.

After the forms were in place, a diver caulked any open space between the lower edge of the form and the bottom. Tremies were then placed and concrete poured under water in a continuous flow with the end of the tremie constantly immersed in the fresh concrete.

While these operations were going on at the front end of the traveler, the rear end was utilized for stripping forms from earlier pours. A diver loosened the heavy bolts holding the form sections together and the sections were lifted to the deck of the traveler, cleaned and prepared for the next assembly.

Traveler II followed closely behind Traveler I, the division partly aiming to make the whole plant more adaptable in case of minor disturbances in the ordinary routine. At the front end of the traveler, forms for arches and walls were erected. The arch centering and forms were made of steel and combined in two units for each arch. The forms were placed on rails fixed on the crossbeams and projecting sufficiently outside the viaduct to enable forms to be pulled out and lifted (Fig. 6).

Forms for the parapet walls were placed on top of the arch forms and the arch and walls were poured from the mixing plant located at the center of the traveler.

The forms were removed at the rear end of the traveler.

Stonefill was placed on top of the arches as soon as the concrete was sufficiently strong to carry it, thus permitting the traveler to be moved forward and providing a roadbed for the narrow-gage service track.

Coping stones were precast concrete blocks manufactured in the yard.

Operations modified at start

For the first 13 bents a change from the procedure outlined in the foregoing was made necessary by a layer of sand varying in thickness from 12 to 3 ft. over the limestone. For this part of the work a staging on wooden piles was constructed and on this base, hollow concrete cylinders of the same size and shape as the normal cylinders were erected. These were jetted down through the sand and filled with concrete.

Construction of these bents was carried forward during fabrication of the travelers and steel forms. Later,

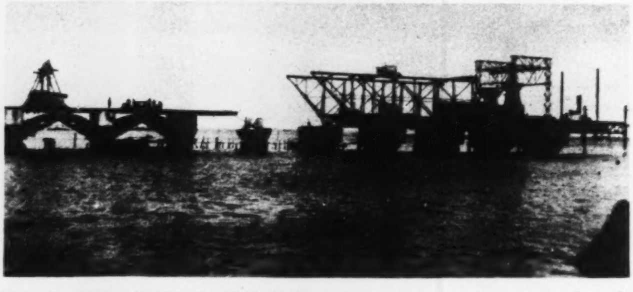


FIG. 5. THE LEADING TRAVELER had just been moved forward when this picture was taken and the forward supporting legs had been set and braced to guide the cylinder forms for the next bent.

the staging served as erection supports for the travelers when they arrived at the site.

With certain modifications the procedure outlined above was used for the construction of the pierhead.

To finish a job of this character by these methods, complete coordination between all operations is necessary. During the planning stage there was some apprehension over the way in which local labor might be expected to react to this unusual and rather complicated machinery. It took, however, only a few weeks to get the people trained and to reach the planned production rate.

The normal time schedule on the viaduct was:

1st day: Move traveler 39 ft. 6 in. ahead, place and adjust forms, clean bottom and pour first cylinder.

2nd day: Pour second cylinder, remove laitance from top of concrete, place reinforcing and pour crossbeam, make preparations to move traveler ahead.

According to this schedule, 12 bents should be built every month and this target was reached a number of times, but owing to inclement weather and other unavoidable delaying factors, the average speed for the 133 bents in the viaduct was reduced to about 9 bents a month.

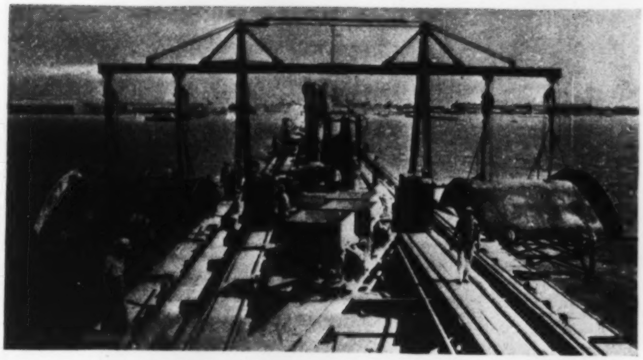


FIG. 6. THE REAR TRAVELER had cantilever arms to permit arch forms to be set and removed without interfering with operations on the deck.

The pier was built by the federal government of Mexico under the direction of Secretaria de Comunicaciones y Obras Publicas and the Secretaria de Marina. Ing. Manuel Bancalari C. supervised the works during the entire construction period as representative for the federal government of Mexico.

This work was carried out by Christiani & Nielsen of Mexico in close collaboration with Christiani & Nielsen Corp., New York. The contractors also were responsible for the design. Anders Christensen was the contractor's general superintendent and engineer. S. M. Kefoed developed the mechanized construction equipment.

Plan Standardizing Plumb-Bob Points

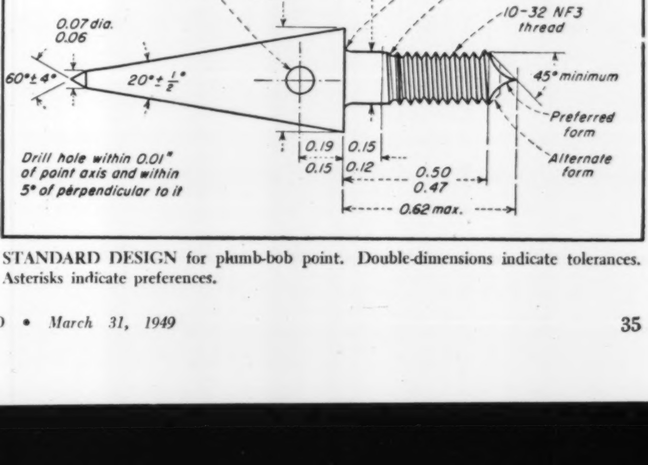
REPLACEMENT of plumb-bob points soon may be a much easier task than it has been, when a variety of thread sizes made it necessary for surveyors and mechanics to order new points directly from the manufacturer of the plumb-bob body.

A tentative point standard, shown in the accompanying drawing, already has been accepted by several American manufacturers. When the points of most or all makers are the same it will be practicable for instrument distributors and hardware dealers to carry points in stock.

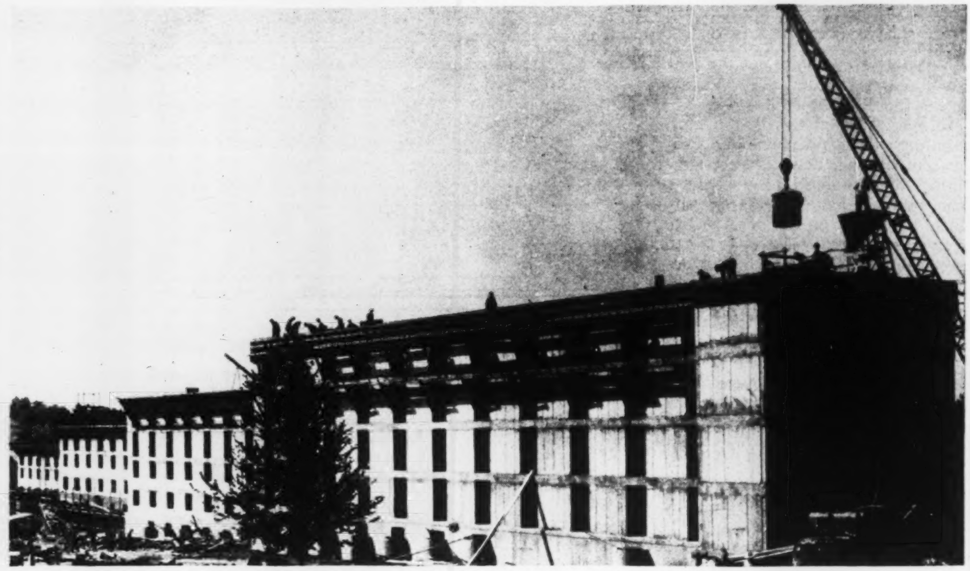
Standardization is being promoted by a committee of manufacturers and engineers, of which Lew Suverkrop, Box 436, Bakersfield, Calif., is acting secretary. The work is being done with the co-operation of the National Bureau of Standards. The committee welcomes comment and serious criticism.

The committee states that the recommended design has a nominal $\frac{3}{8}$-in. body diameter, already used by almost all makers; and a 10-32 thread which has been giving satisfactory service in plumb-bobs of two small and two large manufacturers. No other thread is used by two large makers, and none is in such common use in plumb-bobs. Thus general agreement on this design will call for least change in material size, and least re-tooling of the industry as a whole. And the adjustments to be made will be minor, compared with the benefits for both users and makers. With the convenience of having points generally available, replacements will be more frequent.

The committee states that the standardization has been directed toward developing a plumb-bob point with required characteristics of ease in replacement, accuracy, security against loss, and durability in service. Translating the manufacturing tolerances of the drawing into nominal dimensions, the features of the design include a $\frac{1}{32}$ in. shoulder fillet, a $\frac{1}{8}$ in. unthreaded neck, a long thread chamfer, and a $\frac{1}{2}$ in. stem length, all of which combine to avoid concentrated stresses, and assist in giving a design with the required characteristics. ,



STANDARD DESIGN for plumb-bob point. Double-dimensions indicate tolerances. Asterisks indicate preferences.



An economical answer to the urgent call for student housing is given, where . . .

Precast Walls Speed Dormitory Completion

Theodore Crane

**Professor of Architectural Engineering
Yale University**

FOUR-STORY concrete dormitories, built entirely of load-bearing precast wall sections, are now in use at the University of Connecticut. No structural steel was used; no reinforced concrete columns were required. And the only beams in the whole building were the spandrel beams necessary at each floor level.

Speed and economy were realized through simplicity of design and efficiency of erection method. All walls, bearing and non-bearing, were precast concrete slabs. Exterior and corridor walls comprised the bearing structure upon which reinforced concrete floors were poured in place

Precasting of the 4,000 slabs for the eight university buildings at Storrs was done 65 miles away, near Salesville, R. I. Since the contract for this work was let in January, 1948, and the contractor was under obligation to complete a major portion of it by the following September, there was a definite time advantage in precasting at an established plant, rather than attempting to do it at the site.

A "sandwich" method was used for precasting slabs in stacks, five high—the top surface of one slab serving as the bottom form for the next. The first slab was poured on a wood platform and given a smooth trowel finish. After 24 hours this surface was lacquered and coated with form oil to prevent adhesion, and the second panel was poured. In some cases a desirable finish was produced by laying a canvas between layers. This technique of casting the slabs had been used previously by E. J. Rappoli, contractor on a similar project completed in 1947 at the University of Vermont.

Precasting schedule

General procedure was to pour the first slab of each stack on Tuesday, adding one slab each day through Saturday. Then the stack was separated for shipment to the job site.

Transportation problems were ironed out in short order. It was found that by loading the thinner slabs on edge in a near-vertical position, a minimum of breakage occurrred en route.

Thickness of the exterior wall slabs is 8 in., except for the 4-in panels beneath windows. Corridor partitions are 6 in. thick above the basement, and partitions between bedrooms are 4 in. in thickness.

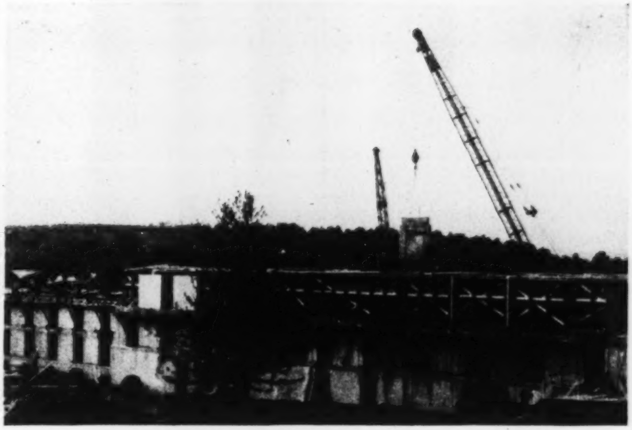
Basements are surfaced with 5-in. sand-cast slabs backed by the 8-in. slabs which carry the load of the superstructure and present a finished concrete surface on the interior. A 2-in. air space separates these two slabs. Above the basement, the 5-in. exterior slabs are replaced by a single width of brick masonry of nominal 4 in. thickness. This design resulted in cavity walls of $5+2+8 = 15$ in. in the basement and $4+2+8 = 14$ in. for all stories above the basement.

Length and height of the slabs was standardized. all typical wall slabs are 8 ft. in length and story height, less the depth of the spandrel beams; all interior partitions are approximately story height, less the thickness of the floor slab, and they vary in length from 8 ft. for corridor slabs to 14 ft. for the partitions between bedrooms.

Placement was accomplished with crawler cranes.

Bottoms of the slabs were not attached to the supporting concrete floors, but the tops were securely anchored into the superimposed floor by two or more steel loops, placed in each slab during casting. It was found

INTERIOR WALL is lowered into its slot in the floor forms.



POURED FLOOR is under construction at left while the crawler crane at the right erects precast wall slabs.

that the most convenient method for holding the slabs in place until the floor they were to support was poured, was to build the floor forms first, then insert the wall slabs at their proper places. Thus, the forms were used as both guiding framework and temporary support until such time as the floor was cast.

When in place the floors span from exterior to corridor walls and form a deck upon which rests the next tier of precast wall slabs.

With the exception of stair halls and toilets, which are glazed tile, all interior surfaces of walls, partitions and ceilings are painted directly upon the concrete. Elimination of all plaster was one of the chief economies of this design.

Use of brick surfacing eliminated the problem of exterior joints between concrete slabs above the ground level. Contraction joints were provided between each of the contiguous dormitory units, but no other specific provision was made for volumetric changes. All interior joints were grouted, but the typical assembly was such as to make these joints comparatively inconspicuous.

Work on the eight dormitory units began in March, 1948, with the Gilbane Building Company of Providence, R. I., holding the general contract. Four of the dormitory units were completed early in September and the remaining four before Jan. 1. This completion date was well in advance of the accepted time limit.

Architects for this, as well as for similar job completed earlier at the University of Vermont, were McKim, Mead and White, of New York City. Fred N Severud, also of New York, was the structural engineer. The author acted as adviser to the state on this project

N. Y. Efficiency Studies Cut Administrative Costs

An estimated $1,160,000 was saved by New York City's division of analysis in the bureau of the budget in 1948, according to the Municipal Finance Officers Association

Put in operation a year ago after a six-months' training period for personnel, the division has discovered 22 instances in which city departments and agencies could be run more efficiently and economically. Other possible improvements are being investigated.

Through revamping the methods by which traffic offenders pay fines in court, 76 police officers were released for assignment to regular police duty. By requiring theaters to maintain fire guards in place of city firemen that were assigned, it was found possible to save $240,000 a year.

Reorganization of the department of sanitation has produced an office of administration, an office of operations, a realignment of the sanitation commissioners' staff and establishment of a bureau of engineering, management and planning.

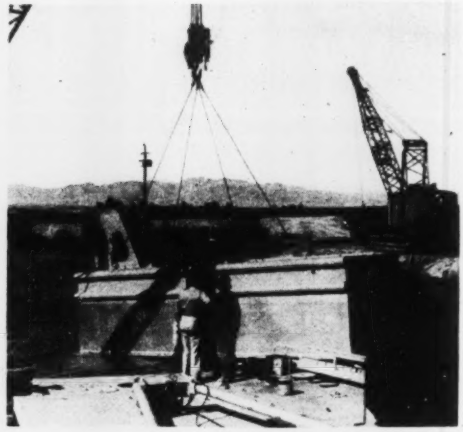
Improve waste collection

Many waste-collection methods have been improved and others will be tried this spring. As a result of a new system of collecting trade waste, and a change in the fees for this service, additional revenues have been produced and manpower and equipment have been released to a total value of $598,000.

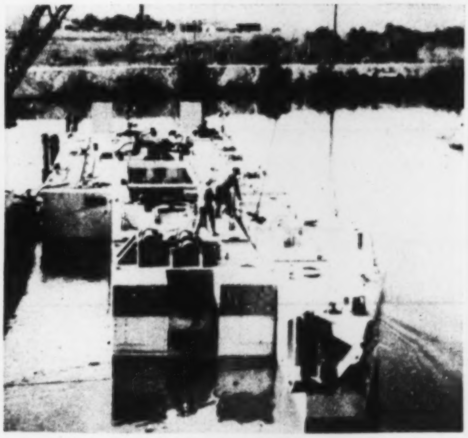
Reorganization was also carried out in the hospital and health departments. Payroll procedures were centralized in the hospital department and fees for certain services were upped. In the health department the number of organizational units was reduced from 18 that had been functioning for some years, to five.

Other savings made as a result of the study of the division of analysis include an increase in fees for abstracts of patients' case histories furnished by the hospital department to produce $90,000, virtual abolishment of police and fire department printing plants to save more than $39,000, and a consolidation of the city's civil jails, $34,500.

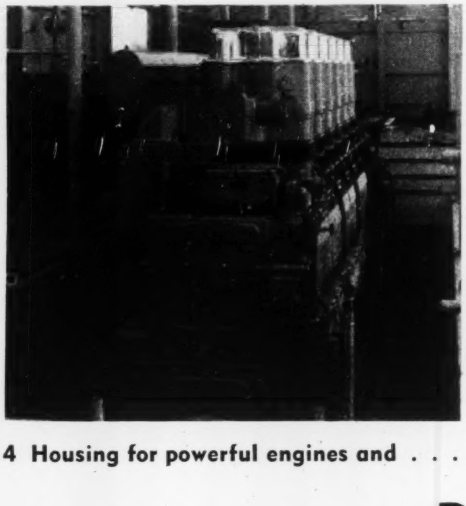
New York's budget in 1948 was $1,160 million—a per capita cost of government of approximately $145 a year. The budget was the largest in city history, and even exceeded the state budget by nearly $100 million.



1 Pontoon sections are lowered into water . .



2 For assembly in this manner . . . .



4 Housing for powerful engines and . . .

5 Support for huge spuds as well as . . .

Dredge Fitted Together

A NEW 20-IN. suction dredge now in service for the U. S. Bureau of Reclamation on the Colorado River can be moved easily—in pieces—by truck.

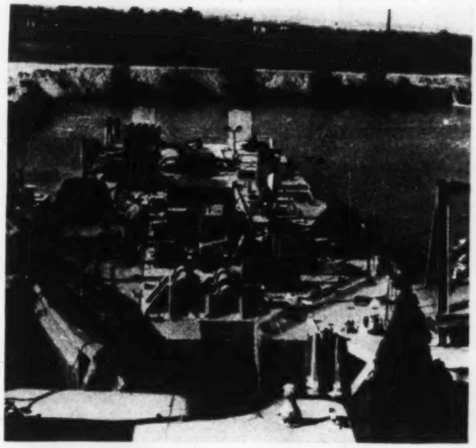
Designed and built by the Pacific Coast Engineering Co., Alameda, Calif., the $871,600 dredge can be taken apart without any cutting or burning, and each of the pieces is small enough to fit on a truck or railroad flatcar. The heaviest part, the main 1,350-hp. diesel engine, weighs 35 tons. Thus, the only special facility needed for assembly in water is a derrick capable of such a lift.

Placed in service in January, the dredge delivered solid material at rates of more than 1,000 cu. yd. per hour during its early operation. Designed to deliver 500 cu. yd. per hour through 2,000 ft. of pipe at an elevation 10 ft. above water level, the dredge will excavate channels in the Colorado River at depths of as much as 25 ft.

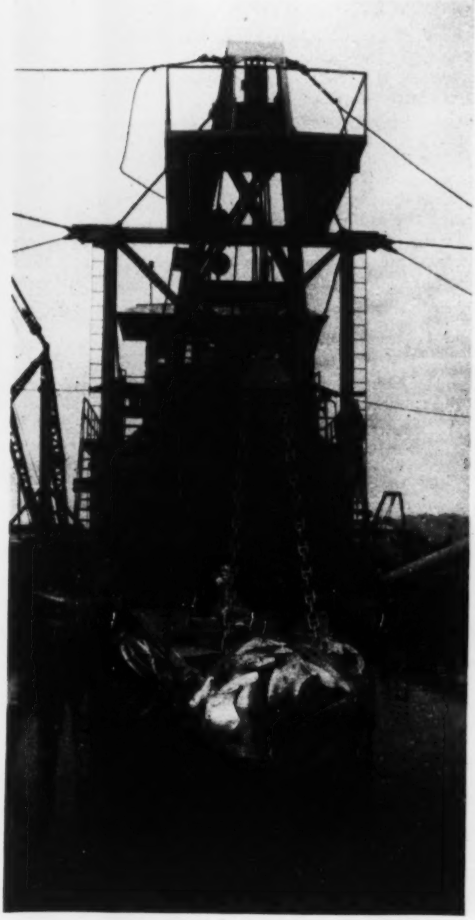
Although the operation of Hoover Dam has reduced the flood hazard on the lower portion of the Colorado River, river regimen was altered so that retrogression and aggradation of the river bed have occurred. This has introduced new drainage, flood control and diversion problems and has threatened floods to populated areas and irrigated land.

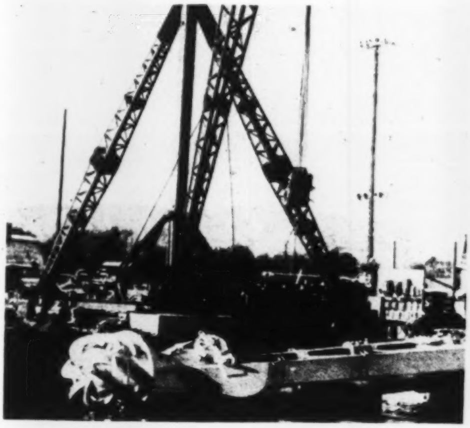
By dredging channels through the alluvial silt and fine sand and gravel deposits, it is hoped that any considerable damage can be prevented. Dense jungles of tules, willows and other vegetation that have grown on the silt deposits in the river will complicate dredging work.

The control and regulation of the river is a relatively new phase of the work in the Colorado River basin that



3 To form the hull that will provide . . .





6 Powerful cutter head and ladder for . . 7 Floating dredge to clear river channels.

For Colorado River Work

has been assigned to USBR by Congress.

The first portion to be dredged is a channel between Needles, Calif., and Topock, Ariz.: the town of Needles and portions of the Santa Fe Railroad right-of-way are threatened in this area. It is estimated that this work will take about two years.

Specifications provided that the dredge be capable of being disassembled and moved on flatcars or trucks. Even though the dredge has mobility designed into it, it will be no easy job to disassemble and move the dredge and auxiliary equipment, including three barges, a tugboat, 1,000 ft. of floating pipeline and 3,000 ft. of shore line. It is estimated that it will cost some $80,000 to make a move.

Nine pontoons in hull

The dredge hull is composed of nine all-welded steel pontoons with an overall length of 130 ft. and a width of 30 ft. The pontoons are 7 ft. 4 in. deep and the assembled dredge has an operating draft of 4 ft. 10 in. The pontoons are arranged in three rows of three each: The forward pontoon in the middle row supporting the cutter-head motor and the greater part of the hoist assembly.

Nested in the second pontoon in the middle row is the main diesel engine and the dredge pump. The aft pontoon in the middle row houses diesel-electric generating facilities. The forward pontoons on the outside support the ladder and the outer part of the hoist assembly. The middle pontoons on the outside have built-in fuel tanks and the aft pontoons support the spuds.

The pontoons and the superstructure frames are of all-welded steel construction as are the deck and pilot houses. The spud frame, the forward frame and the ladder frame are pin-connected and the center A-frame over the pump well amidships is a fixed unit welded to the whole structure. The deck house is constructed of portable side panels and roof sections that are complete shipping units.

Each hull section is a water-tight unit. The sections are bolted together and the portions bearing on adjacent sections are flat steel plates with no protruding elements. Bolts between adjacent pontoons have specially designed water-tight grommets. Wiring and fuel lines between sections are waterproof and can easily be connected and detached.

The dredge pump has a 24-in. suction and a 20-in. discharge. It is direct connected to the 1,350-hp. Enterprise, supercharged diesel engine. Cranes and hoists are provided over the pump so that it can be lifted from its seating in the hull overboard to a work barge.

Power plant

Power for other units of the dredge, such as the cutter motor, hoist motor, service water pumps, etc., is provided by a 525-hp. diesel engine direct connected to a General Electric 300-kw., 230-v., d.c., three-wire generator. The two diesel engines are water cooled, jacket water cooling and lubricating oil cooling being accomplished by heat exchangers using river water as the cooling agent.

The cutter drive is powered by a 250-hp., shunt-wound motor. The cutter shafting is carried forward through a universal-type knuckle-joint with a telescopic unit between the hull and the ladder. Thrust from the cutter is taken on special plate-type thrust-bearings mounted on the ladder structure.

Two cutters are provided, one for cutting clay, silt and alluvial deposits and the other is specially designed for cutting tules, marsh grasses and weeds. The cutting edges of hard-surfaced, cast steel are renewable.

Just aft of the cutter drive motor is a seven-drum hoist that operates the ladder hoist, the swing ropes, the spuds and the swing anchors. This hoist is the outside band, friction type, and has been designed by the Pacific Coast Engineering Co. It is controlled from the pilot house by means of air-control valves and cylinders. Spud ropes are carried aft under the deck. The hoist is powered by a 60-hp., d.c. motor with a controller providing for a 40-ft. per min. rope speed at basic motor speed. Brakes and clutches are arranged to provide for clutch release and brake setting in case of an air failure.

Assembled in the water

The dredge was built in Alameda, Calif., where it was completely assembled to assure proper fit of the component pieces. Then it was taken down and loaded onto some 35 flatcars and 20 trucks and shipped to the point of final assembly at Needles, Calif. A 35-ton capacity derrick was used to lift the heavy pieces from the flatcars and trucks and place them in proper position. Heaviest lift was the main diesel engine that without its flywheel weighs 35 tons.

First hull sections assembled were the middle and aft pontoons of the center row. In their unloaded condition, these pontoons floated high in the water and trimmed almost equally. Thus, one could be placed in the water and the other easily bolted to it as it was suspended by the crane.

Next to be placed were the two pontoons in the middle of the outside rows. These also trimmed fairly even.

Greatest difficulty was encountered with the aft pontoons of the outside rows. Because of the weight of the spud supports that are built into these pontoons, these pontoons had a decided list and were just barely buoyant. However, by effective use of the derrick, they were added to the hull in accordance with the assembly plans.

Next the middle and outside forward pontoons were added. The entire hull assembly took only 5 days. Installation of the machinery and superstructure took considerably longer.

Wooden plugs filled the bolt holes as the pontoons were lowered into the water. When the pontoons were almost in proper position, these plugs were knocked out one at a time and bolts inserted and drawn firm. Then after all the bolts between adjacent pontoons were placed, they were tightened by air-impact wenches.

By placing one bolt at a time, only one bolt hole was open to admit river water to the hull. Each pontoon section carried a pump to pump out any water that might come through open bolt holes during the assembly process. The capacity of these pumps was computed as being adequate should water be coming through all of the bolt holes simultaneously. As it happened, the workmen "hardly got their feet wet." As further protection, a spare pump was available should one of the other pumps fail.

The pontoons are made of $\frac{5}{16}$-in. plates all around, except that the outside of the assembled hull is made of $\frac{3}{8}$-in. plates. These plates are reinforced on the inside with 6x6x$\frac{1}{2}$-in. angles. Bolts joining two adjacent pontoons are $1\frac{1}{4}$ in. dia. and are spaced on 12-in. centers around the outside edge of the facing plates. The connections for the spuds and for the ladder are so arranged that they bolt at the joint of two pontoons and thus the thrust is taken by a double plate thickness.

Transverse joints between pontoons are staggered so there is at least 16 ft. between the joints in the outside rows and those in the inside row. A flat plate reinforces the inside of the pontoons just opposite these joints just as the 6x6x$\frac{1}{2}$-in. angles reinforce the edges of the pontoons that are pierced with bolt holes.

The contract also included the furnishing of 3,000 ft. of shore pipe and 1,000 ft. of pontoon floating line in 40-ft. lengths. Each length is furnished with a flexible joint. Also included is a work barge with pile driver and A-frame, a pipe barge, a fuel barge for carrying diesel oil to the dredge and a 40-ft. twin-screw tow boat.

The dredge is a project of Region III of the U. S. Bureau of Reclamation, E. A. Moritz, regional director. C. P. Vetter is chief of the office of river control for the region and is in direct charge of the dredging program.

The dredge was designed and built by the Pacific Coast Engineering Co., Alameda, Calif., C. H. Ramsden, president. Design was supervised by C. D. Ramsden, chief engineer. Jean M. Allen of Los Angeles was consulting engineer for the company.

Canadian Engineers Probe Land Subsidence

Canadian engineers and geologists, representing the federal government, New Brunswick and municipal engineers of Fairville, N. B., have joined in an investigation of the subsidence of land bordering the famous "reversing falls" in St. John.

The falls occur where the St. John river joins the harbor, and terrific currents and tides of the Bay of Fundy cause the falls to reverse themselves daily.

Land for about half a mile around the falls is affected, with the drop as much as 40 ft.

Initial investigations have given two possible explanations for the subsidence: one being the impact from the tremendous tides in the bay, and the other the collapse of a limestone deposit under the land in the area.

PRECAST FACING over a lightweight steel frame results in a spectacular office building for downtown Los Angeles, Calif.

Low Dead Weight Saves Steel in Frame

SPECTACULAR SAVINGS in the weight of structural steel in a new Los Angeles office building was achieved through use of lightweight concrete and fireproofing.

The pumice-aggregate concrete in floors and walls, vermiculite plaster fireproofing on steel columns and beams and a special precast architectural facing made possible a reduction of 1,000 tons in the weight of the structural steel. Built to serve as western headquarters for the Prudential Life Insurance Company, the structure provides resistance to seismic forces through use of shear walls, is considered completely satisfactory and meets all requirements of the rigid Los Angeles building code.

Since dead weight in a steel-and-concrete, multi-story building usually represents from 60 to 80 percent of the total load on the first-floor columns, the designers of this building believed that much steel could be saved through weight-saving measures. The result was an estimated total saving of 15,600 tons in dead weight with the dead weight as designed totalling some 32,000 tons. This represents a saving of about one-third, and it compares favorably with the design live load on the first story columns of 14,300 tons.

Lightweight concrete

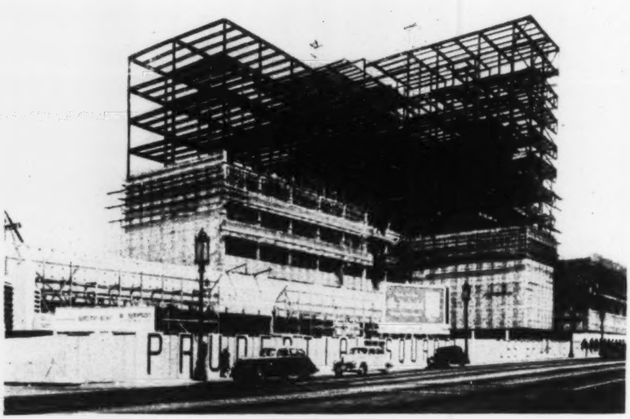
The concrete used was made with a pumice-aggregate. This material, with a strength of 2,500 psi., weighs some 95 lb. per cu.ft. as compared with about 145 lb. for standard stone-aggregate concrete. As 14,400 cu.yd. of concrete was required in the structure, the resulting dead weight saving was 9,800 tons. This was obtained at a cost premium of about $5 per cu.yd.

Most of the ready-mixed concrete plants in the Los Angeles area can produce lightweight concrete. However, the demand is not yet firm enough to permit them to allocate aggregate storage space for this purpose excepting for a contract on a specific job. This usually involves cleaning out a bunker for the lightweight aggregate, with resultant added expense.

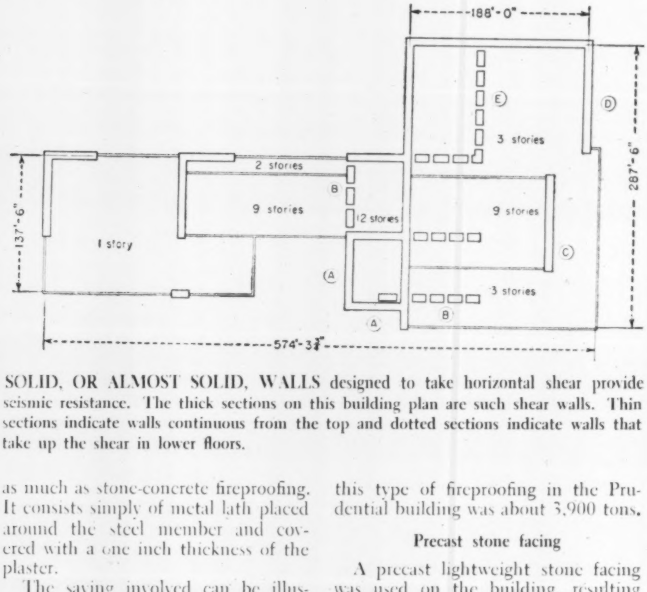
Accordingly, costs on the Prudential job were computed two ways—one for purchase of ready-mixed concrete and the other for mixing concrete by the general contractor at a special plant near the job. Space was available and this latter proved more economical. It resulted in a cost significantly lower than other recent lightweight concrete jobs in the Los Angeles area. Eventually, when the demand is steady enough, further economies may be realized through the ready-mix companies.

Plaster fireproofing

An even more impressive percentagewise weight saving was realized by use of vermiculite plaster fire protection for the exposed steel beams and columns. This type of fire protection, approved by the Los Angeles Building Department, weighs about one-tenth



DURING CONSTRUCTION, the light frame steel of the two-block area building showed to great advantage.



SOLID, OR ALMOST SOLID, WALLS designed to take horizontal shear provide seismic resistance. The thick sections on this building plan are such shear walls. Thin sections indicate walls continuous from the top and dotted sections indicate walls that take up the shear in lower floors.

as much as stone-concrete fireproofing. It consists simply of metal lath placed around the steel member and covered with a one inch thickness of the plaster.

The saving involved can be illustrated as follows: Concrete encasement of an 18-in., WF, 50-lb. beam weighs 225 lb. per lin.ft. of beam and costs about \$4 per lin.ft. This compares with a weight of only 23 lb. for Vermiculite plaster fire protection that costs only about \$2.80. This weight saving alone is 10 percent of the load-carrying capacity of the beam on a 25-ft. span. With beams spaced at 8-ft. centers, this type of fireproofing represents an average dead weight reduction in the building of 25 lb. per sq.ft. of floor space.

Total saving in dead weight using this type of fireproofing in the Prudential building was about 3,900 tons.

Precast stone facing

A precast lightweight stone facing was used on the building, resulting both in a striking architectural appearance as well as a significant saving in weight. The weight saving was possible because of special anchorage provisions for the large panels. This required only about 1 in. to be allowed between the back of the precast slab and the structural concrete walls for grouting the slabs in place. Most other types of facing with units of the same size require greater clearance.

The savings amounted to 15 lb. per sq.ft. of surface and this totaled 900 tons.

The slabs are approximately 6 ft. square in size and are made in varying sizes to fit the requirements of the building face. Corner slabs bend approximately 12 in. around the corners to eliminate corner jointing. Slabs around the window jambs, sills, and heads and also at the top of the coping of parapet walls are similarly returned to eliminate jointing.

The slabs are reinforced with galvanized mesh in which galvanized anchors are embedded. Bolts extend into the wall and fasten to these anchors. The slabs are 2 in. thick and are set 1 in. from the concrete wall so they can be grouted in place. Thus, the slabs are both bonded to and anchored to the structural wall. Concrete from which these slabs are made tests at about 6,000 psi. and has an absorption of approximately 3 to 3½ percent.

Architectural advantage is achieved through the use of a combination of crushed quartz and white cement in these slabs. Careful consideration is given to grading so that a maximum amount of crushed aggregate is exposed on the surface. After the slabs are cast, the surface film of cement is removed by an etching process so that the aggregate is exposed sufficiently to give a decided texture or character to the slabs.

Other advantages of these slabs obtain in that they can be made in large-scale quantities and they fit in well with the modern conception of architectural design. As they are precured and heavily reinforced, the possibility of cracking is almost entirely eliminated. The density and quality of the slabs are such that the resulting surface should remain clean and durable for many years. The effect of both natural and artificial light on the broken facets of the quartz aggregate gives interesting color effects. Light reflectivity is expected to be very high.

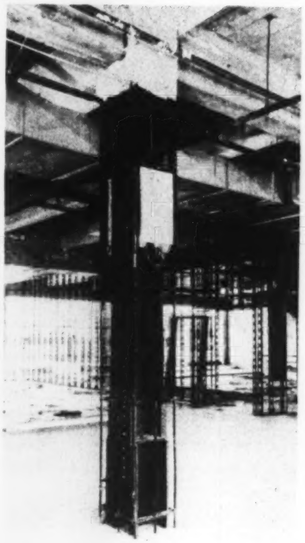
Earthquake-resistance design

As is required in California, this building was designed to resist earthquake forces. In the Los Angeles building code it is assumed that in case of an earthquake, the building would be subject to horizontally applied forces throughout. The magnitude of these forces is expressed by the equation:

$$h = W_d \left(\frac{0.6}{N + 4.5} \right)$$

where h is the horizontal force at any given floor of the building, W_d the total dead weight of the structure above the story under consideration and N the number of stories above the one under consideration.

By considering this formula, it can



VERMICULITE plaster fireproofing saved much weight. A 1-in. thickness placed around columns and beams saves embedding the member in concrete.

be seen that the seismic load is directly proportional to the dead weight W_d. Thus, by reducing the dead weight of a structure as was done in the Prudential case, the intensity of the seismic forces is accordingly reduced.

Vertical resisting elements

As can be seen in the accompanying illustrations, the Prudential building is made up of several units of varying height and, accordingly, varying rigidity. In this case it is impractical to resist horizontal forces by portal framing. Accordingly shear walls were used as vertical resisting elements, which were located at or in line with the junction of dissimilar units.

Although it is always desirable to make shear walls continuous throughout the height of the structure, this was impossible in the Prudential case because of architectural or use requirements. For example, the walls marked A on the accompanying floor plan are part of a 12-story tower. They are used as shear walls for the top 11 stories. However, on the first floor this is the entrance to the main lobby and here the architectural design dictated the elimination of these walls. For this first floor the seismic forces induced in walls A are transferred to the two walls marked B.

Another example of transfer of seismic forces is the case of wall C. It is continuous from the fourth floor up throughout the 9-story height. A department store is located below the fourth floor and this required clear space. Therefore, the seismic shear from wall C is transferred through the fourth floor framing system to walls D and E. These take such forces from the fourth floor to the foundations.

Other similar transfers of seismic shears were necessary, but generally to a lesser degree. The only place where floor thickness had to be increased to take care of transfer of seismic forces was on the floor just above the front end of the main lobby.

Because the magnitude of the seismic forces is considered to be a function of the dead weight above a floor, these forces are greater in the lower stories. Accordingly, additional shear walls were provided in the lower stories. In addition, some of these lower walls were increased in thickness to 12 in. In most cases, however, the normal 6 and 8-in. concrete walls were adequate to provide seismic resistance.

Design of the reinforcing steel in the walls for resistance to horizontal forces is analogous to the design of a concrete beam. The vertical steel in the wall is the top and bottom steel in the beam and the horizontal steel in the wall has the same function as stirrups in a beam.

These shear walls are not necessarily solid. In general they are pierced with window and door openings. However, these are small enough to permit special reinforcing to carry stresses around such openings.

The building will be the western home office of the Prudential Insurance Company of America. Architects were Walter Wurdeman & Welton Becket. Structural engineering was done by Murray Erick Associates, Los Angeles. The exterior facing was produced in Los Angeles under a joint venture of Wailes-Bageman, Inc., and Otto Buehner & Co. Contractor was Wm. Simpson Construction Co.

Reservoir Reduces Flood In Hudson River Valley

The storm of Dec. 31, 1948-Jan. 2, 1949, in upper New York State caused the greatest flood in the Sacandaga River in the 41 years that streamflow records have been maintained on that river. The Sacandaga is one of the principal tributaries of the Hudson River and its flow is largely controlled by the Sacandaga reservoir, which is formed by Conklingville Dam built by the Hudson River Regulating District in 1928-30 for flood control and to increase the low flow of the Hudson River at mills and power plants located between the mouth of the Sacandaga River and tidewater in the Hudson River at Troy.

The inflow to the Sacandaga reservoir reached a peak of 74,000 cfs. at 4 p.m. Dec. 31, which compared with a peak inflow of 64,000 cfs. in the March 1936 flood, the previous record. This inflow was caused by a rainfall which totalled 7.5 in. at Conklingville dam, of which 6.15 in. fell during Dec. 30 and 31.

Precipitation over the upper Hudson valley in the fall of 1948 was very low, September being the driest month in the Sacandaga River records. As a result, at the beginning of the December storm the reservoir surface was El. 748.80, which is 22.2 ft. below the spillway crest of the Conklingville dam. All release from the reservoir was stopped at 10:30 a.m. on Dec. 31, before the Hudson River had reached flood stage, and all of the floodwaters of the Sacandaga River were withheld from the Hudson while it was at flood stage.

Edward H. Sargent, chief engineer of the Hudson River Regulating District, estimates that this operation on the Sacandaga reservoir reduced the maximum elevation of the flood stage of the Hudson River at Albany by 4.9 ft. Without the reservoir storage, the Hudson river at Albany would have been nearly 2 ft. higher than the great flood of March 28-29, 1913.

Sacandaga reservoir's surface rose 5.2 ft. on Dec. 31, and a total of 9.3 ft. from Dec. 30 to the morning of Jan. 2, when the reservoir still was 12.9 ft. below the spillway crest. During this time, 8.8 billion cubic feet of water was stored.

The peak flow of the Hudson River at Glens Falls, below the mouth of the Sacandaga river, was slightly over 42,000 cfs. Mr. Sargent estimates that it would have been over 97,000 cfs. but for operation of the Sacandaga reservoir, and would have been considerably in excess of the crest reached there in the record flood of March 1913.

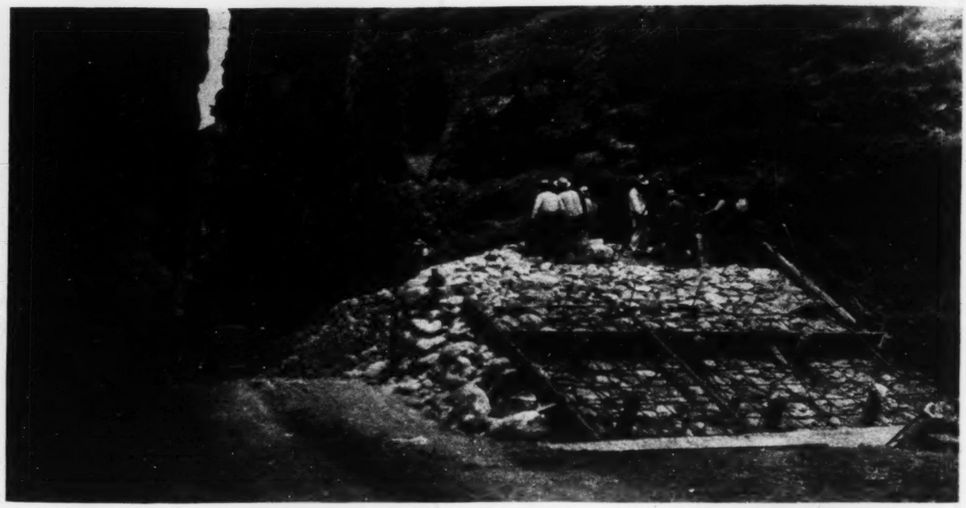


Fig. 1. THE OVERFLOW CREST was built up and paved in alternate steps and the access road was shifted from left to right to permit that work, downstream fill being added to bring it to the higher level.

Earth and Rockfill Dam Designed For Overflow During Construction

During the past few years, engineers of the Ministry of Hydraulic Resources of Mexico have developed a unique method for handling high floods through river gorges without going to the expense of driving large diversion tunnels. This method now has been used successfully at four dam sites, with suitable variations as demanded by local conditions. The most spectacular application was at Valsequillo Dam on the Atoyac River, which work is described in the following. Also included are observations on possible improvements of the method made by Andrew Weiss, chief of the ministry's consulting staff, who is credited with having originated it.

Badly fractured rock

The geological formation at the site chosen for Valsequillo Dam presented unusual aspects. There was a narrow gorge in the lower part of the valley extending over a distance of 2,000 ft.; cut into a hard limestone conglomerate or breccia, which, although of good quality, was badly fractured. Many of the fissures and some of the caverns were found to be filled in part with clays containing fragments of rock. The conglomerate was overlain by beds of tuff and tepetate, intermixed with layers of sandstone.

The existence of this narrow gorge suggested the selection of an arch dam. As initial steps toward construction of a dam of that type, a small diversion tunnel only large enough to carry the normal flow of the stream was driven through one wall of the canyon and work was started on building a masonry arch cofferdam at the upper end of the dam site and the usual earth and rock coffer dam at its lower end. Meanwhile the excavation of the cut off trench and the arch abutments were undertaken with the forces that could economically be employed.

As this work progressed and the geologic structure became better known, there arose doubts as to the suitability of the site for an arch or even any other type of dam—causing the ministry to seek the advice of two consulting geologists from the United States: Charles P. Berkey and Kirk Bryan. These geologists, together with John L. Savage, consulting engineer, were engaged on two occasions to inspect the site during the period of exploration, which covered the construction of the cut-off trench, the preparation of the foundation within and on both sides of the gorge and the work of grouting the cracks and crevices and the cleaning out of the caverns for refilling with concrete.

Arch dam abandoned

At the time of the first visit of the consulting board, during which a careful study of the exploratory work along the axis of the dam was made by means of the cut-off trench and other exploratory diggings, it became evident that the construction of an arch dam at this site or elsewhere along the gorge was impractical. Consequently, it was decided to abandon the arch design and build the entire structure as an earth-and-rock fill, which would close off a long section of the canyon and greatly facilitate the work of making its walls impervious to flanking and underflow.

However, unless this fill could be overtopped safely during the time that the canyon was being filled, the whole work would be delayed and its cost very materially increased by the need for driving much larger diversion tunnels to carry the sudden summer floods to which the river was subject. Little was known about those floods except that they were frequent and violent due to rainfall on mountains bordering the watershed—some of which rise to over 13,000 ft. and are snowclad.

Experience gained on other and smaller dams served as a general guide in designing the protection here adopted. However, those earlier dams had been built in wider gorges where the depth of overflow had been much less than would occur in the gorge at the Valsequillo site, which was 150 ft. deep and narrowed down to a width of 40 to 50 ft. at some points.

Adding to the problem was the fact that material for the first 120 ft. of height of the fill would have to be hauled up the canyon and over the downstream slope of the dam is it rose above the canyon floor.

The final decision was to protect the downstream slope by paving it with a heavy slab of reinforced concrete anchored to the face by rods buried in the fill.

As built, this slab was reinforced with ⅜-in. round bars running in both directions and spaced 12 in. on centers. It was made 16 in. thick at the bottom and was anchored by ¾-in. bars to a cut-off wall across its toe. The 16 in. thickness was maintained until a vertical height of 10 meters above the base had been reached, after which the thickness was reduced to 12 in.

The slab was anchored to the face of the dam by ¾-in. bars extending 6.5 ft. into the fill; it also was anchored at the sides by bars grouted into the rock walls of the canyon.

To prevent heaving of the slab due to uplift during a flood, weep-holes 6 in. in diameter were spaced 6.5 ft. center to center throughout the entire slab.

To permit passage of trucks hauling fill material, the downstream rock toe and slab were carried up in alternate

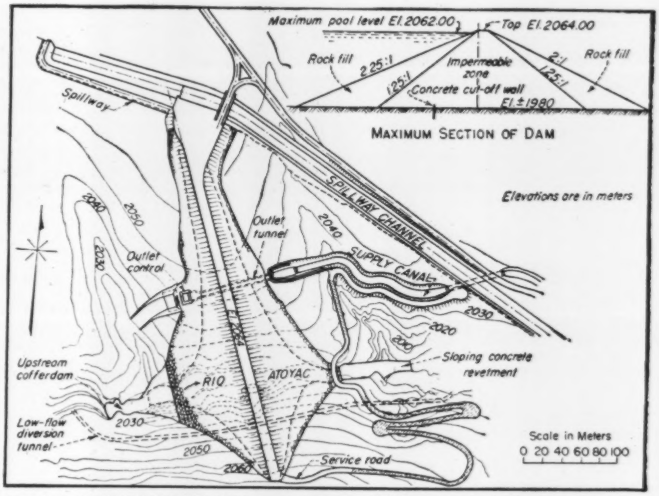

Maximum pool level El.2062.00
Top El.2064.00
Rock fill
2.25:1
Impermeable zone
2:1
Rock fill
1.25:1
1.25:1
Concrete cut-off wall
El.±1980
MAXIMUM SECTION OF DAM
Spillway
SPILLWAY CHANNEL
Elevations are in meters
2040
2050
2030
Outlet control
Outlet tunnel
2040
SUPPLY CANAL
2030
2020
2010
Sloping concrete revetment
Upstream cofferdam
RIO
ATOYAC
Low-flow diversion tunnel
2030
2050
2060
Service road
Scale in Meters
0 20 40 60 80 100

Fig. 2. **VALSEQUILLO DAM is an earth and rock-fill structure closing a narrow gorge of the Rio Atoyac and rising above the canyon walls to a total height of 269 ft.**

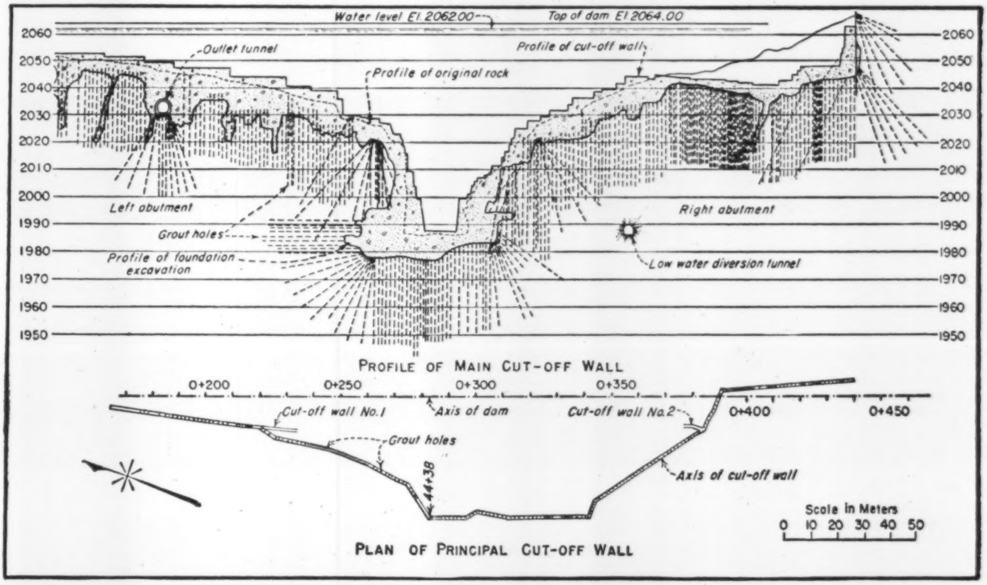

Water level El.2062.00
Top of dam El.2064.00
2060
2050
2040
2030
2020
2010
2000
1990
1980
1970
1960
1950
Outlet tunnel
Profile of cut-off wall
Profile of original rock
Left abutment
Right abutment
Grout holes
Profile of foundation excavation
Low water diversion tunnel
PROFILE OF MAIN CUT-OFF WALL
0+200
0+250
0+300
0+350
0+400
0+450
Cut-off wall No.1
Axis of dam
Cut-off wall No.2
Grout holes
44+38
Axis of cut-off wall
Scale in Meters
0 10 20 30 40 50
PLAN OF PRINCIPAL CUT-OFF WALL

Fig. 3. **AN ELABORATE SCHEME OF GROUTING was required below the dam to prevent flow through the underlying rock. Grouting under the principal cut-off wall is shown here. Similar work was done under other shorter walls.**

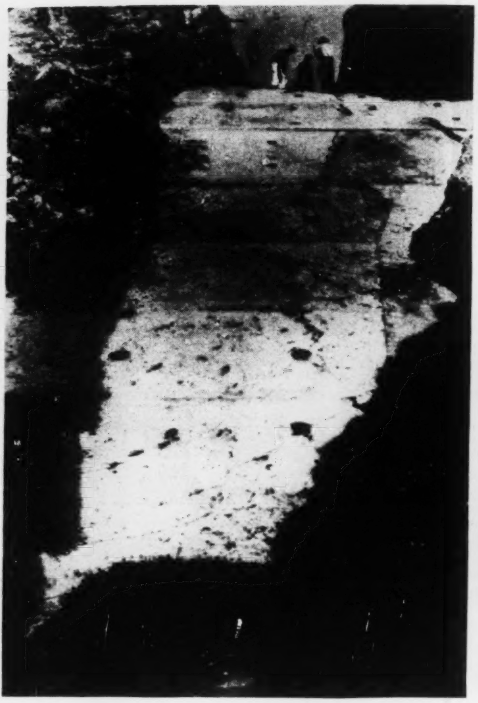


Fig. 4. THE DOWNSTREAM SLAB was damaged somewhat in the May, 1943, flood, being cracked by uplift, but the fill remained intact.

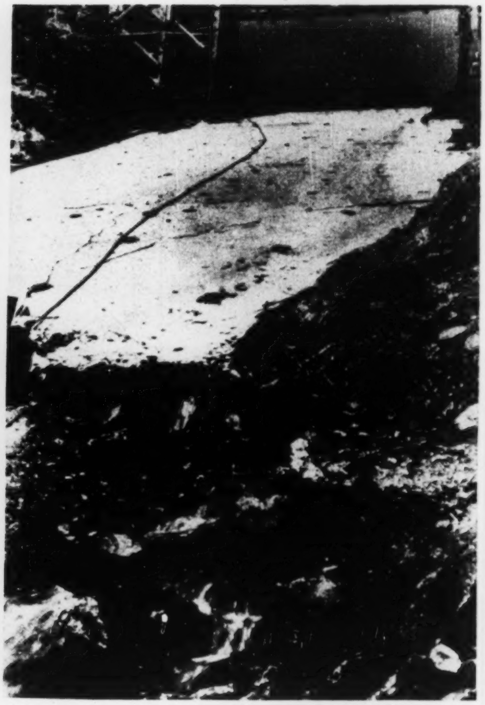


Fig. 5. AT ITS LOWER EDGE, some of the slab was completely carried away during the August, 1943, flood but the fill was undamaged.

5-ft. lifts of about half the canyon width, first on one side and then on the other, as shown in Fig. 1.

This required maintaining the temporary overflow crest at the downstream end of the structure always 5 ft. higher over one half its length. To reduce velocities of overflow, this crest was kept systematically higher than the upstream edge of the fill. Earth and rock were placed in the fill in such a manner as to maintain at all times a downward slope toward the upstream edge.

Construction of the concrete slab followed closely behind the fill to provide protection at all times. Also, as the slab was extended up the slope a temporary fill was built up below it to provide a runway for the trucks. It was realized that much of this latter fill would be lost in a high flood.

In Fig. 1 the top of the buried concrete slab can be seen at the right. Forms have been set for an extension, with pipes set in them for the air vents. This picture also shows the rock wall that was maintained along the edge of the roadway to facilitate building the fill at the right and to reduce loss of fill during a flood.

The impervious body of the dam was built of a decomposed conglomerate containing rock fragments ranging in size up to six inches, mixed with volcanic tuff. The latter was abundant in the borrow area close to the dam in the form of surface deposits 10 to 12 ft. thick overlying the decomposed conglomerate. Tests showed the mixture, after compaction, to make an embankment of greater density and imperviousness than could be obtained with only earth materials of fine texture such as the sandy loams and clay loams from the alluvial river terraces. The rock fills were built of limestone conglomerate blocks quarried in the immediate neighborhood of the dam.

Flood does little damage

The first flood occurred in May, 1943, when the fill crest was 52 ft. above the river bed. It carried away much of the temporary roadway fill below the dam but did no serious damage to the main structure. The crest length at that time was 60 ft. and the depth of flow was 5.5 ft. on the high side and 10.5 ft. on the low side, the discharge being estimated at 3,500 sec.-ft.

As will be seen in Fig. 4, uplift pressure cracked the protective slab, but it remained in place.

In August, during a second flood, the water surface reached El. 6,622.3 ft., or 122 ft. above the river bed. As the elevation of the higher half of the crest was 6,614 ft. and that of the lower half 6,609 ft. the depths of overflow were 8 ft. and 13 ft. respectively. The total length of the crest was 46 ft. Maximum discharge was estimated at 1,306 sec.-ft.

In September, during the third flood, the water surface rose to El. 6,632 ft. or 132 ft. above the river bed and its maximum depth over the low part of the crest was 8 ft. The gorge was 59 ft. wide at this level, giving a discharge calculated at 2,605 sec.-ft.

Part of the slab was washed away in this flood, and about half way up the slope the slab was lifted clear of the surface of the fill about one foot due to lack of sufficient weephole capacity.

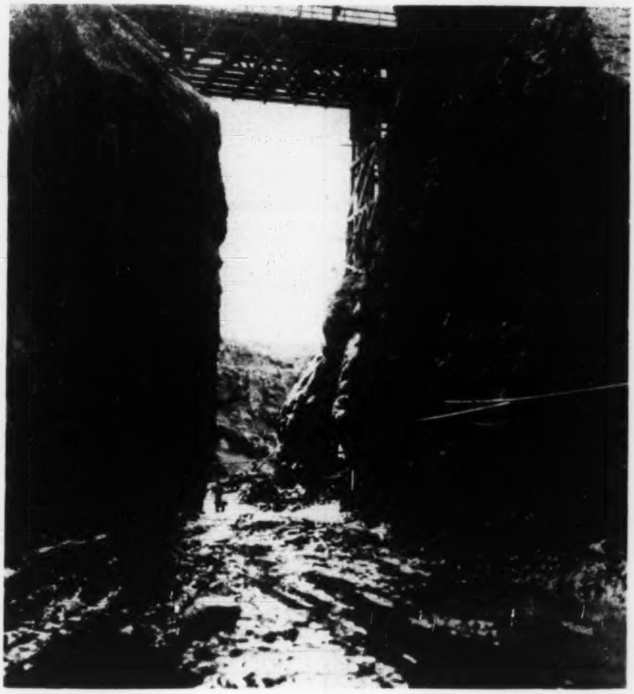


Fig. 6 TOP OF FILL after the May flood, looking downstream. No fill was lost.

Water that got into the rock fill ran out at openings left in the slab near the bottom and about half way up.

The graduated quarry-run backing behind the rockfill on the downstream section of the dam proved effective in protecting the compacted earth section; in fact, no erosion of any of the materials placed was noticeable.

Work was resumed after this flood and the project was completed without further trouble.

Conclusions

As a result of experience gained at Valsequillo Dam, the commission's staff has reached the conclusion that the concrete slab on the downstream face may have been unnecessary, that a mesh of steel bars properly anchored would have provided adequate protection during overtopping.

The staff concluded, however, that it is of first importance to provide rockfill of a type sufficiently heavy to serve as anchorage for the mesh, and second to back this rockfill by an inverted filter composed of adequate layers of quarry run materials graduated as to size, to function as an inverted filter. Once carefully built, movement in the rockfill is then precluded and no loss of material from the compacted interior earth fill will occur.

In providing overflow channels during construction, special care is required to protect against flanking washouts. In the case of Valsequillo Dam, where overflow was confined within rock walls, a flanking failure was impossible. This advantage was offset however by the narrowness of the canyon which concentrated flow and was responsible for high velocities. Moreover, rock abutments for earth dams are a potential danger source of seepage water under high pressure heat. Fine cracks or fissures in the rock walls are notoriously difficult to seal completely by means of grouting operations. This aspect was of far greater concern at Valsequillo Dam than the passing of flood flows during construction.

Judging from the observations made at Valsequillo Dam the concrete slab might have been dispensed with considering the excellence of the rock fill material, but had the composition of the rock fill been restricted to smaller fragments, a concrete slab of the general type described herein, would have been indispensable.

Valsequillo Dam forms part of the irrigation system constructed by the National Irrigation Commission of Mexico, which commission on Dec. 1, 1946, was transformed into the Ministry of Hydraulic Resources. The dam was built under the direction of Adolfo Orive Alba, chief engineer, now minister in charge of the new ministry. Andrew Weiss, chief of the commission's consulting staff, who originated the system of passing floods over dams under construction with the collaboration of the Project Manager J. Vicente Orozco was largely responsible for the unique methods employed. The dam has been dedicated to the then president of Mexico, Manuel Avila Camacho, but still is mostly referred to as Valsequillo Dam.

City Hall with Stores?

Miami, Fla. may be the first major city in the United States with a revenue-producing city hall if plans put forward by architects and department heads for a new-type municipal building are approved, the American Public Works Association reports.

Forced to move from present offices in the county building within the 18 months, city officials are exploring all possibilities for a new municipal building located in the downtown area of the city. Building the city hall in the business district would dovetail smoothly into proposed plans for an income-producing structure.

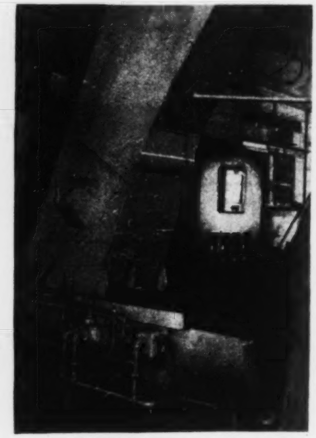
The "new-look" municipal building would contain stores on the ground floor and municipal offices on upper floors. The entrance to the city hall proper would resemble a hotel lobby with an information desk near elevators.

Another revenue-producing plan has been suggested for at least two or possibly three of the upper floors—that they be designed to park automobiles at a small fee. Then, at a later date these rough-finished floors could readily be put into use as office space, as necessity requires. Cars would reach the upper floors by ramps which could be eliminated and the opening sealed as fast as the city took over these floors for offices.

City officials do not believe that they would be placed in the position of competing with local retailers, as merchants would have an opportunity to bid on the store locations. In addition, a revenue-producing city hall would save all taxpayers, including the merchants, a possible increase in tax bills.

L. A. Accepts Incinerator After Delay

The Los Angeles Board of Public Works has finally accepted the $900,000, 480-ton per day, rotary-kiln incinerator built by the Griffith Co. (ENR Dec. 12, 1946 vol. p. 793). Acceptance of the plant came 15 months after it was completed and initially operated. An explosion during the acceptance tests—run in late 1947—was the primary cause of the delay



ENLARGED CHUTE feeds shredded rubbish to one of the furnaces. The chute was enlarged to correct "furnace starvation." Stoking ram operating in half-circle trough was lengthened by 5½ in.

Revisions that made the plant acceptable included the installation of protective "explosion" walls and minor changes in the vertical chutes that correct furnace starvation.

The chute corrections, according to W. A. Schneider, city waste disposal engineer, widened the vertical chutes which lead to rams feeding four self-stoking rotary kiln-type furnaces. Stoking rams were lengthened 5.5 in. Original length was 31.75 in.

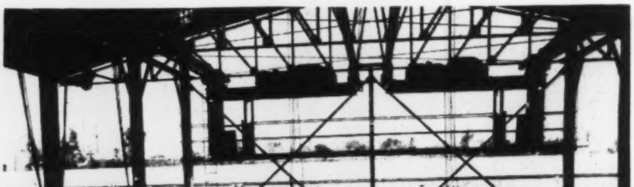
Schneider reported that tests corroborated the combustible rubbish incinerator's 480-ton daily capacity and showed capacity "even higher than figured." Los Angeles plans four more incinerator plants, "though not necessarily the same design," he said.

E. B. Milnor, Griffith Co. engineer in charge of the plant, confirmed the tests as to "substantially over specified amounts" and said the corrections solved "the problem of conveying shredded rubbish to the furnaces."

The incinerator will be purchased from the Griffith Co. by monthly payments of $7,840 that will be repaid through fees charged for using the incinerator.

In this plant, combustible rubbish is fed into shredders that have blades rotating at 1,200 rpm. which "chew" the charge into 1½-in. pieces. The explosion occurred in the conveyors that took the shredded rubbish to the furnaces, apparently due to failure to provide a large enough charge to the furnaces. A study was made of the handling of rubbish that could contain substances of an explosive nature when shredded. Revisions have apparently corrected the difficulties and made a successful test run possible.

Since the incinerator was built, the Los Angeles County Air Pollution Control Commission has become operative and the incinerator has had to meet the commission's rigid "smog" control requirements This was possible even with stacks only 40 ft. high because the combustion temperature is high (1,600 deg. F.) and the products of combustion are passed through a spray chamber with the assistance of forced draft.



CHARGING PIT where rubbish is accumulated for Los Angeles incinerator. Trucks dump into either side. Clam-shells feed the rotary shredders.

Detroit Paving Work Is on a "25% Down" Basis

A squeeze on municipal capital reserve funds in Detroit, Mich., has resulted in discontinuance of forced paving by the Department of Public Works, in favor of a 25 percent down payment policy.

Under a city ordinance, the Commissioner of Public Works is authorized to approve up to $3,250,000 worth of paving and certain other improvements annually with no down payment required, when requested by a petition of 51 percent of abutting landowners. Assessments for the cost of the work are spread over a 3-year period. This is called forced paving, and the method is used at the discretion of the commissioner, the budget director, and the common council, which finally appropriates funds to pay contractors.

Now when a group of people on a street want it paved, they must furnish the 25 percent down payment on the indicated cost. They must then pay the balance over a 3-year period.

Forced paving has been employed in many instances to get paving started. The property owners will sign a petition more readily if no down payment is required than if they have to pay in 25 percent of the cost along with the signing.

Municipal funds for such purposes at present are short, so for a time the forced paving approach have been discontinued. Now all paving petitions must be accompanied by deposits of 25 percent of the cost. The indication, therefore, is that authorized paving will be somewhat reduced.

Status of Sanitary Engineering—

A Progress Report

THE SANITARY ENGINEER must actively support research and development if he is to maintain his position as the legitimate expert in the science of water treatment, waste disposal and pollution abatement. He must be prepared to examine and test new developments with competence.

This great need for basic research was stressed in a progress report of the Committee on the Advancement of Sanitary Engineering during the annual meeting of the American Society of Civil Engineers in New York City. The report was presented by H. G. Baity, professor of sanitary engineering, University of North Carolina as committee chairman.

Other topics explored in the report, which is a major summary of the status of the profession, were: Sanitary engineers in consulting and commercial organization; new fields of service; sanitary engineering in governmental agencies; trends in sanitary engineering education; and a recommendation for creation of united-front committee for the advancement of sanitary engineering with representation from all interested societies.

Research activity essential

The report calls attention to a basic fact: While sanitary engineering is traditionally a branch of civil engineering, it differs vitally from its parent. Sanitary engineering deals primarily with processes—civil engineering is concerned principally with design and construction of structures.

Consequently, the sanitary engineer must be conversant with chemistry, biology and fluid motion so that he can adapt new process developments to practice. Adaptation requires fundamental as well as applied research and development.

Such an important research program is now being carried on by the National Institute of Health through its Division of Research Grants and Fellowships. Grants-in-aid are available for worthy projects relating to public health and comfort but projects must be fundamental research and competently supervised.

Sanitary engineering projects are reviewed by the Sanitation Study Section of the institute. During the past two years, 143 projects requesting $1,704,278 in grants-in-aid have been reviewed by the section; 62 program amounting to $553,646 have been approved.

Outstanding among the significant findings of the Sanitation Study Section, Dr. Baity said, is "the dearth of properly qualified engineers and scientists to undertake basic sanitation research." He revealed that many applicants for grants "appear unable to distinguish between basic research and ordinary routine surveys and testing. One of the important aims, therefore, of this program is to discover and develop talent for basic scientific research in environmental sanitation."

Experience of the Sanitation Study Section also indicates that most of the talent capable of carrying out basic research is connected with universities. This condition, the committee agreed, "may be considered as a reflection on the interest as well as competence of practicing sanitary engineers." The report expressed the hope that more consulting engineers will take active part in research and development and pointed out that such progressive action is necessary "if they are to maintain their leadership in the sanitary-engineering profession."

NEW SERVICE OPPORTUNITIES

Four new fields of service for the sanitary engineer were explored in the committee report: Bacterial warfare, nuclear-fission operations, waste disposal by industry and foreign-service environmental sanitation. Cited is a publication, "Official Report on Biological Warfare" by George W. Merck (Bulletin of Atomic Scientists, Vol. 2, Nos. 7 and 8, Oct. 1, 1946), which suggests that sanitary engineers will be called upon to devise and operate defensive measures against bacterial contaminants. The disease agents probably to be combated will be those affecting man, animals and farm crops and those related to food, water and air-borne transmission.

The kind or scope of probable protective measures against bacterial warfare have not been outlined—at least publicly, the report advises. It is likely, however, that conventional tests for detection of contaminants will have to be re-examined to provide more positive methods of pathogenic-organism detection during possible attack. In addition, new sanitary-control techniques might be demanded since the means for disease transmission could be far different from those encountered under normal conditions.

Substantial progress has been made recently, the report commented, toward a clearer definition and response as to the role the sanitary engineer will play in connection with nuclear-fission operations. Leading engineers have effectively argued that "protection of man and his environment against the hazards of radio-activity is a responsibility of the sanitary engineer"—who should be familiar with nuclear-fission operations, especially in disposal of wastes to atmospheres, soil and surface waterways. The Atomic Energy Commission is now finding it desirable to acquaint the profession with several aspects of the radio-active-waste problems as related to environmental sanitation.

Acceptance by AEC of the thesis that sanitary engineers have a basic responsibility in the atomic-energy industry has encouraged two eminent engineers to summarize the present situation (Some Public Health Problems in Nuclear Fission Operations, A. E. Gorman and Abel Wolman, American Public Health Assn., Boston, Mass., Nov. 11, 1948). Among their conclusions are: (1) The problems resulting from the continuing expansion of the nuclear-fission industry presents "an opportunity and a challenge for the trained sanitary engineer;" (2) public-health workers should have nuclear-physics training to afford a better understanding of atomic energy and its environmental problems; and (3) the need for trained sanitary engineers is especially acute considering their responsibilities in national defense.

Men who can cope with stream-pollution abatement measures, the report states, are high on the list of industry's personnel requirements. Two conditions are responsible for this demand. Top management of industry is becoming increasingly sympathetic to the correction of waste-disposal abuses as well as aware of possible, profitable byproduct recoveries through industrial-waste treatment. Sanitary engineers are gaining satisfactions for themselves and benefits for their employers in this field.

Sanitation in foreign lands

The sanitary engineer is finding ready identification with worldwide projects in which "productivity, and hence profit, depend on development and maintenance of high standards of environmental sanitation." Notable examples are operations of U. S. oil companies in foreign lands and the Liberia Company in Africa. A private venture to develop that country, the Liberia Company program includes a health and sanitation foundation, financed by ten percent of the profit.

The unprecedented program of the Health and Sanitation Division of the Institute of Inter-American Affairs, which has been in effect for only about six years, has made a profound impact on Latin America.

Encouraging also is the first-meeting action of the World Health Organization in placing sanitary engineering projects high on its agenda of future activities.

STATUS IN GOVERNMENT AGENCIES

Government agencies have utilized sanitary engineers too frequently "to help correct problems and cure situations that should never have been allowed to develop," the committee declared. Now unduly complex and complicated, many problems, "are due, in part at least, to the lack of sound sanitary-engineering advice that should have been given at policy-making levels of government."

The profession must "envision future problems and develop sufficient technical competence and leadership capacity to be effective in formulation of such governmental policies" as may be required to maintain environments safe and wholesome in accordance with public-health standards. Success or failure of the sanitary-engineering profession will depend to a great extent upon its ability to measure up to this increasing responsibility, the report prophesied.

Military opportunities

"Opportunities for effective sanitary engineering services in the military establishment are not, at this time, good," the report advised. With enactment of the Officer Personnel Act of 1947, no education and experience qualifications are required for Corps of Engineers commissions. Except for civil-works employees, the Corps of Engineers is no longer a professional group. While there is no specific place for the sanitary engineer officer in it, a nearly adequate staff of such civilian experts is being maintained in the corps.

Sanitary engineers in the medical department are grouped with entomologists, medical scientists, pharmacists, optometrists, supply and administration officers into a Medical Service Corps. This corps does not rate a general officer for each complement of about 200 officers and is permitted only two-percent full colonels against eight percent for the remaining branches of the Army.

In the Air Force, where the problems of organization have not been solved, no one can foresee immediate developments.

So far as is known, the Navy does not utilize sanitary engineers.

Of all the federal agencies, the Public Health Service offers the sanitary engineer the best opportunities. This service is especially attractive because of a sounder organization of the Sanitary Engineering Division plus expanding duties including supervision of nation-wide pollution-abatement.

EDUCATIONAL TRENDS

While the pattern of education for sanitary engineers is only now becoming discernible, four types of programs now appear: Sanitary engineering, industrial hygiene, public-health engineering, and environmental sanitation.

Sanitary engineering programs, originated as undergraduate options in civil engineering, have successfully broken away by being placed on a graduate basis. In these programs, an attempt to offset the primary deficiencies of the civil engineering curriculum is made by including instruction in bacteriology, parasitology and chemistry. Because of the elementary nature of this instruction, two alternatives to raise graduate education to a more advanced level are being explored. They are: Inclusion of elementary biological and chemical sciences in undergraduate civil engineering curricula; and a requirement that prospective students make up deficiencies in advance of graduate instruction.

A similar deficiency applies to the industrial hygiene field. For example, need for prevention of industrial diseases and creation of satisfactory working conditions brought the engineer into this field. Because it is associated with control of air (temperature, humidity, motion, pressure and harmful impurities), mechanical and chemical engineers generally possess the best preparation for this work. These engineers, however, often lack biological science and chemical knowledge. Educational opinion as to industrial hygiene training is reported to be still quite fluid.

The committee calls attention to the fact that there is no check upon public health engineering curricula because instruction offered public health schools is not subject to accreditation by the Engineers Council for Professional Development. Not only have vocational aspects of instruction been stressed, but practical field experience has been included in the educational system. The resulting instruction, they say, contains so little engineering material that general science students master the subject matter with ease. Such students are often admitted to the same graduate degrees as engineers —degrees, it is emphasized, that have "no basis of fact in engineering."

Environmental sanitation instruction programs are being developed in liberal arts colleges as well as some medical schools. It is intended that graduates work as sanitarians under qualified engineers or physicians. While there is some danger that the profession of sanitary engineering may be diluted by improper utilization of sanitarians or sanitary inspectors, the committee feels that these risks can best be met by directing their education and properly incorporating them "into the engineering structure as ancillary technical personnel."

Unification of interests

In concluding its report, the committee recommended that it be discharged and that a new joint committee composed of representatives of all organizations with an interest in sanitary engineering be authorized. With the ASCE as the stimulating and motivating agency, the new group would not only promote sanitary engineering but also provide coordination of interests and activities through a united front.

It is proposed that the joint committee be staffed with invited engineering representatives from the Sanitary Engineering Division, ASCE; American Public Health Assn.; American Water Works Assn.; Federation of Sewage Works Assn.; American Public Works Assn.; the American Chemical Society, the National Society of Professional Engineers; American Society of Mechanical Engineers and the American Society for Engineering Education.

The Committee on Advancement of Sanitary Engineering is composed of: Earnest Boyce, professor of sanitary engineering, University of Michigan, Ann Arbor; Thomas R. Camp, consulting engineer, Boston, Mass.; Edward J. Cleary, executive director, Ohio River Valley Water Sanitation Commission, Cincinnati, Ohio; Gordon M. Fair, dean of the Graduate School of Engineering, Harvard University, Cambridge, Mass.; William A. Hardenbergh, editor of PUBLIC WORKS, New York City; and H. G. Baity, chairman.

CONSULTING AND COMMERCIAL PRACTICE

Because of current expansion of opportunity in waterworks, waste disposal and pollution abatement, many consulting engineers, manufacturers and commercial organizations with no experience are taking up this type of work. Some consultants and commercial organizations have wisely employed sanitary engineers but the supply of competent men is woefully inadequate to meet the situation.

The report points out that this trend has been encouraged by the considerable wartime development work in water and waste treatment subsidized by the federal government, much of it by commercial interests under the protection of patents. Some examples of successful development are: Demineralization of water by synthetic resins, diatomaceous-earth filtration for water purification; and numerous proprietary processes for sewage and industrial-waste treatment.

Many new developments were eminently successful for wartime use where cost was no deterrent, but are too expensive for normal peace-time use. Speaking for the committee, Dr. Baity said that high-pressure sales methods are being employed by commercial organizations in an effort to adapt new developments to peace-time uses. This presents, he said, "a great opportunity for competent sanitary engineers to develop further some of the new methods and processes, reduce costs within the competitive range of other processes and find projects peculiarly suited to new developments."

Heavy Duty Expansion Plug

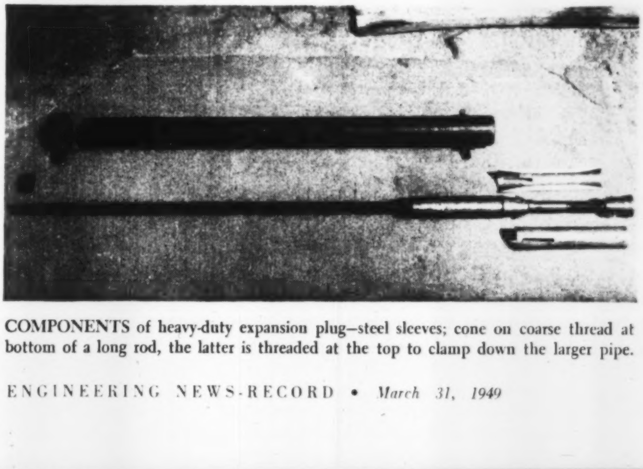
A removable expansion plug, heavy and rigid enough to hold a diamond drill, has been developed at Friant Dam by R. G. Hotchkiss, compressor operator for the Bureau of Reclamation.

The plug consists of two steel sleeves tapered to act as wedges, firred over a pair of steel cones mounted on a threaded rod. When the threaded rod is turned, the cones force the tapered sleeves outward to bind on the inclosing surface—usually a hole drilled into masonry—thereby holding the assembly rigidly in place. To release, the threaded rod is turned in the opposite direction and the plug can be withdrawn for use at other locations.

In the program of drilling and grouting at Friant Dam, the expansion plug is used as follows for mounting diamond drills: a hole 2¾ in. diameter is drilled with a percussion drill to a depth of 13 to 16 in. The assembled plug is inserted in the hole with the plug seated and expanded, a pipe column is placed over it to mount the diamond drill. The outside pipe is held at the bottom by set screws and the top is held down by a nut run down on the threaded top of the rod, bearing on a cap turned on to the outside pipe.

Prior practice

Prior to development of heavy duty plugs, general practice in diamond drilling was to fasten a short length of pipe in a hole drilled into the foundation material. The length of pipe embedded varied from 2 to 6 ft. and it was caulked with lead wool or cemented with a thick grout. Usually the pipe was abandoned because of the excessive cost of salvaging, but it was necessary to burn it off or cut with a chipping gun 2 or 3 in. below the surface and patch the resulting hole. This required considerable time, compared to some 40 minutes required for drilling a small hole with a percussion drill and rigging up the rigid pipe described here.



COMPONENTS of heavy-duty expansion plug—steel sleeves; cone on coarse thread at bottom of a long rod, the latter is threaded at the top to clamp down the larger pipe.

EXPANSION PLUG holds rigid a pipe to which diamond drill is attached.

De-Icing Wintertime Pavements With Salt Cuts Maintenance Costs

F. Ray Williams
Superintendent of Highways
Saratoga County, N. Y.

A SAVING OF ABOUT $4.27 per mile can be effected by using rock salt instead of sodium-chloride-treated sand to de-ice highway pavements. Application of rock salt not only insures safe driving conditions by maintaining clean, dry surfaces, but also eliminates the expensive, labor-consuming spring clean-up of pavements, shoulders and ditches when sand is used.

The advantages of rock salt as an effective pavement de-icer and snow softener have been demonstrated in Saratoga County, N.Y. where the county highway department started using this material in the winter of 1947-48.

Real savings effected through use of salt are revealed by examining winter maintenance expenditures for a two-year period. Total cost of applying sand abrasives mixed with calcium chloride to 216 miles of state highways in Saratoga County during 1946-47 was $49,792. The snowfall for that winter amounted to 83 inches. This compares with $38,936, the total expenditure for rock salt treatment of the same highway system during 1947-48 when snowfall was 117.5 inches.

Salt spread mechanically

Rock salt (CC grade) was experimentally applied to pavements at various rates by an efficient commercial spreader attached to the tail gate of a standard dump truck. The spreader, which could be adjusted to "sow" a thin layer of material, permitted accurate application of 400 lb. of salt per mile—an amount found to produce the best cleaning and softening results.

The experiment resulted in the following general procedure:

When ice storms commence, rock salt is spread across the entire width of the highways, retarding freezing and insuring safe conditions.

When snowstorms are accompanied by temperatures of 20 deg. or above, trucks are dispatched to spread salt as soon as snow starts to fall; plowing is delayed until about four inches of snow has accumulated. The initial fall normally is thawed to such an extent that it becomes mealy or slushy and traffic packing is precluded. High-speed plows are able to clear pavements of snow and slush with one pass.

If the storm continues, residual salt on the surface keeps snow and ice soft so that successive passes by the plows clean the pavements readily.

After a four or five-inch storm subsides, it has been demonstrated often that a single plow-trip will clean the pavement. Pavements then dry off within a few hours and no further treatment or plowing is needed.

During wet snowfalls, rock salt keeps the snow readily compacted under traffic action—loosened up, to permit easy plowing at all times during the storm.

Weather and Highway Facts

Saratoga County lies in upstate New York, about 200 miles north of New York City. It is in the snowbelt and receives 60-120 in. of snow annually. Many snow storms are light—not exceeding 6 in. in a single fall—and are generally accompanied by temperatures above 20 deg. F. The ice and snow season starts in November and occasionally extends into May. Total lengths of the state- and county-highway systems in the county are 216 and 350 miles, respectively.

A cost analysis of treating pavements with 3-cu.yd. per mile of sand abrasives mixed with 50 lb. of sodium chloride per cu.yd. of material and with rock salt at the rate of 400 lb.

COMPARATIVE COSTS OF PROTECTING ICY HIGHWAYS WITH TREATED SAND AND ROCK SALT

Sand mixed with calcium chloride:	
Royalty	$ .10
Loading	.25
Haul, 5 miles at 8¢	.40
Piling with bulldozer	.15
Treating with salt at 50 lbs. per cu. yd.	.48
Reloading at time of storm	.25
Average haul, 10 miles at 8¢	.80
Spread	.10
Total cost per cu. yd.	$ 2.53
Use of 3 cu. yd. per mile at $2.53 =	$ 7.59 per mile
CC Grade Rock Salt: (400 lb. per mile, computed for 5-ton load)	
5 tons of bulk salt at $12.95 per ton	$64.75
Loading, 5 tons at 25¢ per ton	1.25
Average haul (30 miles at 8¢ per ton-mile) 5 tons	12.00
Spread (mechanical) 5 tons at $1.00	5.00
	$83.00
$83.00/5 ton =	$16.60 per ton
$83.00/25 miles =	$ 3.32 per mile

Unit Savings:

$7.59 cost per mile with treated sand
3.32 " " " " rock salt

$4.27 saving per mile each icing in favor of rock salt

Total Saving per storm:

Mileage of state highways in Saratoga County, N. Y. = 216 miles
Estimated saving each storm = 216 x $4.27 = $922.32

WHEN ICY HIGHWAYS are treated at the beginning of a storm with rock salt applied from a high-speed mechanical spreader (left), dry lanes result within a few hours after the storm ceases.

per mile indicates that a definite saving is effected by the latter method. The cost of salt-treated abrasives is calculated at $7.59 per mile while that of the rock salt application is $3.32 per mile (see tabulation). The saving amounts, therefore, to 56 percent or about $4.27 per mile.

Since there are about 216 miles of state highways in Saratoga County, use of rock salt results in a calculated saving of about $922 per storm on this system alone. The cost analysis, however, does not take into consideration the necessity of repeated sanding when treated abrasives are utilized.

Equipment employed

Six trucks with spreaders are assigned for spreading rock salt on state highways in the county. The trucks are loaded with about 51 tons of salt—a sufficient quantity for the entire system—and dispatched to preassigned sectors at the beginning of a storm. Two laborers and a driver accompany each truck.

When salt-mixed sand was used, about 648 cu.yd. of sand abrasive was required for the state highway system. To load and spread this amount of material, four mechanical loaders and about 39 extra trucks were used—many of which were rented, and 121 drivers and laborers hired for the duration of the storm. In addition, considerable extra administrative effort was needed to supervise and direct this large force of men and equipment and extra work was required for stockpiling the abrasive material.

An additional large saving—not evaluated in this cost estimate—accrues from use of rock salt: Spring clean-up of highways is eliminated. When treated abrasives are scattered over highways during the winter, sand remaining on pavements must be broomed off. This causes high shoulders that must be cut down at considerable cost. Sand must not only be removed from the shoulders but also from drainage structures—a time-consuming manual-labor operation.

With the current practice of safeguarding highways during the winter with rock salt, it is possible to establish safe driving conditions quickly and eliminate nuisance and cost of continuous sanding with its attendant traffic hazards. It should be pointed out that 51 tons of rock salt can be spread on the state highway system in considerably less time than 648 cu.yd. of sand.

During the winter of 1947-48 with a total snowfall of 117.5 inches over Saratoga County, bare highways were maintained for about 90 percent of the winter months. This was accomplished with rock salt.

New Process Transforms Straw to Insulating Board

A new process for making insulating building boards from straw, opening the way to wider industrial use of this farm residue, has been announced by G. E. Hilbert, chief of the U. S. Department of Agriculture's Bureau of Agricultural and Industrial Chemistry.

This recent development of department research promises to help wheat straw compete with sugarcane bagasse and wood pulp as a raw material for insulating boards and to encourage manufacturers to tap the nation's unused straw resources. About 40 million tons of wheat straw alone is now burned or wasted every year on American farms.

The new method for making straw into building board was described at the recent annual meeting of the Technical Association of the Pulp and Paper Industry in New York City by E. C. Lathrop and T. F. Maffzinger. These researchers developed the process at the Bureau's Northern Regional Research Laboratory, Peoria, Ill.

Their procedure consists essentially of blending ordinary straw pulp, now used in making strawboard for boxes and packing materials, with a new type of pulp which is relatively less expensive to produce and contributes increased strength and other desirable qualities to the finished product.

Cooked without chemicals

Conventional straw pulp is normally cooked under pressure in a chemical solution. The new pulp is made by cooking the straw in water without chemicals at atmospheric pressure and then running it through a "disc refiner", which breaks down the straw fibers into bundles of fine strands. The special properties of the new pulp are due largely to the fact that about half of its fibers are relatively narrow and slightly less than one inch long.

By blending these two pulps in varying proportions, manufacturers can produce insulating boards with a wide range of densities and other physical properties as desired. These improved straw boards have unusually high quality and greater strength at the same density than most commercial boards made from wood fiber. They also have exceptional "impact strength", or resistance to sudden blows. This is particularly important in preventing damage during handling.

The new process, which has been under investigation at the laboratory for some time, grew out of extended research into the fundamental relationship between the length and diameter of wet straw fibers and the physical characteristics of finished board products.

READER COMMENT

An Engineer Stamp

Sir: This is prompted by the news item appearing on page 41 of the Feb. 17 issue of Engineering News-Record issue headed "An Engineer Stamp".

Well over a year ago, the American Society of Civil Engineers started negotiations with the U. S. Post Office Department looking toward a commemorative stamp to be issued in 1952 in connection with the centennial celebration of the society. Tentative approval was granted, although it is yet too early to consummate specific arrangements.

It is planned to celebrate the centennial on a national and international scale, and the issuance of a commemorative stamp in connection with that event would be highly appropriate.

Probably, when the Board of Directors of the National Society of Professional Engineers adopted a resolution recommending issuance of a commemorative stamp, it was unaware of the steps taken by ASCE. NSPE has been notified of the facts and we assume that no further action will be taken by that society under the circumstances.

WM. N. CAREY
Executive Secretary
American Society of Civil Engineers

Getting Lower Bids

Sir: We have had a very interesting situation arise in connection with a $2,000,000 flood control dam, which we have designed for the Commonwealth of Pennsylvania, Department of Forests and Waters.

First bids for this dam, received about the middle of January, were rejected because of some legal difficulties.

New bids were received on Feb. 10. Of the 12 bidders at the original opening, four of them rebid the job, and in each case the bids were lower the second time as shown in the following tabulation:

I don't think this is necessarily an indication that prices have receded any during the months between receipt of the two bids, but it does show that there was a bit of sharpening of pencils. The low bidder the second time was the apparent low bidder the first time, and the contract has now been awarded to him.

	Original Bid	New Bid
Lycoming Constr. Co.	$2,067,000	$2,031,000
Loyalhanna Constr. Co.	2,462,000	2,169,000
D. W. Winkleman.	2,674,000	2,189,000
Hunkin-Conkey Co.	2,125,000	2,110,000

I think the reason why we are getting good bids (and we are on everything within recent weeks) is that the contractors are not now so much worried about the future. They are able to contract for materials considerably in advance and be sure of their price, and also they feel that labor wages are pretty well established.

FARLEY GANNETT
Consulting Engineer
Harrisburg, Pa.

Greek History and Construction

(*Personal letter from Athens, Greece, to an* ENGINEERING NEWS-RECORD *editor contains the following comment on the work that is winding up over there this month.*)

Big jobs going on—and lots of them being completed over here. Reconstruction of key harbors—a couple of big tunnels—some massive highway and railroad bridges—arterial links in the national life of Greece.

Color and tradition are piled thick around all of these jobs. Take the reconstruction of a vital canal—why, the Romans started the excavation! There's a plaque of commemoration still standing! Part of a highway through Thebes—why there's a great sculptured marble lion beside the road—the Thebans erected that when they beat the hell out of Alexander the Great! Right out here, 15 miles from my desk, the mud is thick on the Plain of Marathon where the Greeks walloped Xerxes and his Persians up one side and down the other for a great victory!

Up the line—above the Corps of Engineers' job at Salonika—in the Plains of Phillippi why Messrs. Marc Anthony and Cassius, Brutus and Octavius Caesar snorted and short-sworded about the place—and the days of the asp were sneaking up on Cleo. And up Lamia way—Brallo Runnel—Brallo Bridge and Gorgopotamos Bridge (new) where the evacuating Germans wrought a Dantesque nightmare in 1944 with a trainload of explosives (and where General Wheeler's boys have been doing a bigger and better job of restoration) why there—away over there—is the old and famous hot pass of Thermopylae. That's where old Xerxes tried to slip across—but a Jesse Owens of the early Greeks hot-footed it back in B.C. cable time to Paul Revere the word—and throw sand under the invasion's wheels. And an area engineer like your correspondent is amazed by the exquisite perfection of old Hadrian's road job.

All only coincidental to modern construction jobs being done under stupendous difficulties. An example—three cranes were towed over from West Coast—two in tandem! Down through the Panama Canal—across the Atlantic—8,000 miles—to wind up doing titanic work on a harbor that the Phoenicians raided!—and on a canal that Nero, the Roman, dreamed up!

Training Estimators

Sir: Reference is made to an article in your December 9, 1948 issue entitled "Do Our Estimates Cost Too Much?" by R. D. Sannit. A suggestion was made that it might prove desirable to make a ". . . survey of estimating procedure throughout the country." The need for training "quantity surveyors" is also cited. These particular phases we wish to discuss, with particular reference to quantity take off in preparation for contract advertising of the California Division of Highways.

For the past several years it has been the standard practice of this Department to indoctrinate design recruits with a course in estimating. Those of limited experience are initially given practice jobs for which quantities have been previously taken off and checked. This introduction to the design section affords one an opportunity to display his work habits individually and to become familiar with the various types of plans produced by the Department. The newcomer is encouraged to develop his powers of observation by "sizing-up" the various jobs on his own terms and of checking himself by independent means, such as the records of structures similar to the assignment at hand. He is invited to mark up his working prints in the spirit of checking the project or making any other contribution he can in the way of plan improvement.

Two separate estimates are taken off at the end of which they are compared in detail by individual items appropriately broken down to reveal critical differences.

Pricing of the items is done by

supervisory members of the estimating section.

The California Division of Highways takes pride in sharing its portion of the responsibility to furnish the various types of engineering experience essential to the success of young graduate engineers.

A. J. Meehan
Supervising Bridge Engineer
California Division of Highways
Sacramento, Calif.

Insulating Building Boards

Sir: We would like to make the following comments on the information given in ENR Dec. 16, p. 18 and Feb. 3, p. 78, regarding insulating boards made of mineralized wood fiber and portland cement.

There have been various products of this type made in this country under different names. Porex has been manufactured since 1935 for roofs, floors and walls. It serves three functions as a structural, insulating and acoustical material. It can be left exposed as an acoustical surface or finished with plaster, cement or nailable concrete to which surfacing can be nailed.

It is particularly adaptable to roofs of auditoriums, manufacturing plants and installations where sound absorption and heat insulation must be considered. Many laboratory tests have been made on these two properties and approvals for use granted in most cities.

David H. Crater
Essex Fells, N. J.

Suspension Bridge Aerodynamics

Sir: Supplementing my previous letter (ENR Jan. 20, 1949 p. 96), I have since received additional information, through the courtesy of Dr. Arne Selberg, chief engineer, department of highways at Oslo, relative to the aerodynamic behavior of Norwegian suspension bridges.

The last suspension bridge with a stiffening truss in Norway was built in 1923. Light, flexible suspension bridges, using merely standard rolled beams for stiffening, have been built there since 1917, twenty-two of them in the period 1927-37. Only three of these bridges have had reported oscillations.

The first was the Framnes Bridge, built 1932, span 485 ft. During erection, just before the concrete floor was placed, the span got into vertical oscillations (2 and 3 segments) during a storm. The bridge, sustained severe damage; several hangers in the middle of the span failed and one of the stiffening girders broke near the quarter point. The damage was repaired, and the bridge completed as designed. No subsequent oscillations of the span have been reported. The dead weight and structural damping of the concrete floor have yielded the desired resistance to aerodynamic oscillations.

The second structure was the Vrengen Bridge, built 1932, span 551 ft., similar in construction to the Framnes Bridge but shallower and more flexilble. After completion, the span was frequently observed to have small vertical oscillations (usually 2 segments) in a strong wind. These oscillations did not appear to affect either the structure or the traffic, and no corrective measures seemed necessary. After two years (1934), however, some of the hangers at the middle of the span failed. The longitudinal movement of the span due to the two-segment vertical oscillations caused the failure of the short hangers by bending at their rigid connections. All of the hangers in the middle of the span were then replaced, which improved connection details. The Vrengen Bridge still has small vertical oscillations in strong winds, but with no further reported damage or failures since the replacement of the hangers.

The only suspension structure that has given more severe trouble is the Fyksesund Bridge, span 751 ft. This crossing is in an exceptionally stormy location. Since its completion in 1937, the bridge has twice been damaged by vertical oscillations. The severity of the wave motions caused the bridge to be closed to traffic a total of ten hours in nine years. On those occasions, the wind was so strong that it was impossible to stand even on the stiff, unsuspended side spans. Vertical oscillations with a double amplitude of about 5 ft. were observed. The usual motions were in 2, 3, or 4 segments. The oscillations did not damage the cables, hangers, stiffening girders, or the continuous concrete slab. The longitudinal movements of the stiffening girders due to the two-segment oscillations have resulted in damage at the towers. In 1945, after some studies on a model similar to that used for the Bronx-Whitestone Bridge, underfloor stays were installed near the towers. These stays appear to be effective.

From the drawings furnished, the writer has prepared the following tabulated comparison of four of the Norwegian suspensions bridges, with dimensional ratios and aerodynamic constants. The bridges are listed in the order of recorded aerodynamic instability, and the last column gives the recommended values of the aerodynamic constants as previously derived and published by the writer. The consistent gradation in values of the aerodynamic constants tells the story. The historical trend is also recorded in the dates of construction.

On account of the oscillations of the Fyksesund Bridge, studies have been carried on in Norway since 1940 on the problems of oscillations and aerodynamic stability in suspension bridges. Some section-model investigations have been carried out for the Fyksesund Bridge, and further tests will be made. The model showed torsional instability at high wind velocities; torsional oscillations, however, have never been observed on the bridge.

The experiences in Norway with aerodynamic oscillations of suspension bridges, antedating the Tacoma bridge failure by eight years, apparently missed coming to the attention of bridge engineers in the U.S.A. This reinforces the argument, repeatedly made by the writer, for greater international cooperation in the sharing of problems and in the exchange of new knowledge.

D. B. Steinman,
Consulting Engineer
New York, N. Y.

SUSPENSION BRIDGES IN NORWAY

Bridge Completed	Fyksesund(1) 1937	Vrengen(2) 1932	Framnes(3) 1932	Bingfoss(4) 1927	Required(5) Constants
Span	751	551	485	426	
d/b	.062	.076	.103	.093	
b/l	1/32	1/34	1/30	1/22	
d/l	1/506	1/441	1/295	1/235	1/100
R	.032	.066	0.174	0.264	0.25
K	83	79	106	153	120
K/B	231	297	439	553	300
$R\sqrt{K/B}$	0.50	1.14	3.64	6.22	5

Remarks: (1) Twice damaged. Stays added.
(2) Hangers failed and repaired. Still unstable.
(3) Unstable during erection.
(4) No reported oscillations.
(5) As previously derived by the writer.

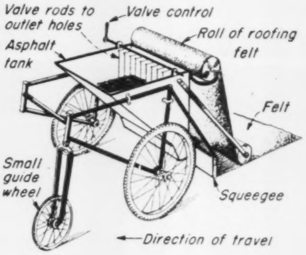
FIELD AND OFFICE

Roof Felt Laying Machine

A three-wheel, job-made machine was used successfully to lay roofing felts on a plant being built for the Aluminum Company of America at Davenport, Iowa.

The machine was made from two bicycle frames cut down and placed side by side. Between them is mounted a 35-gal. metal "hotstuff" tank, in the bottom of which is a transverse line of ten small holes through which the asphalt runs, to cover a 36-in. width of roof. The holes are valved by rods running up through the tank to a single, levered crossarm that raises or lowers them to open or plug the holes.

Mounted behind the line of holes is a squeegee mop that spreads the bitumen evenly over the strip of roof. A roll of felt rests loosely in a holder at the top rear of the machine and feeds down around the idler roller just above the roof level.


Valve rods to outlet holes
Valve control
Asphalt tank
Roll of roofing felt
Felt
Small guide wheel
Squeegee
←Direction of travel

A three-man crew works with the machine: one delivering pitch, one pulling and operating the felt-layer, and one standing on the free end of the roll to hold it down at the previous lap. The machine replaces a five-man crew, and is said to do a neater job.

The machine was developed by Brown & Kerr, roofing contractors, of Chicago.

Precast Beams "Shocked" By Pile Hammer

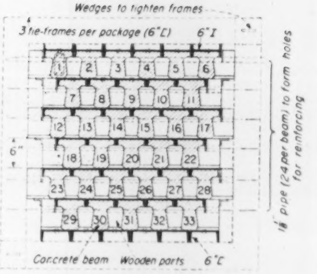
A novel use of a drop-type pile hammer to vibrate or shock "package" forms containing 33 precast beams has proved successful in reconstructing the war-wrecked Mangfall Viaduct on the autobahn southeast of Munich, Germany. The beams, 17.5-ft. long and of a tee section, are to be laid transversely across the steel bridge stringers, and side by side with the stem of the tee up. The troughs between the tees will then be filled with concrete to form a monolithic deck.

The beams are prefabricated in a yard near the bridge site. The forms for 33 beams are assembled on end on a platform, short projections on the bottom of the forms fitting into centering holes on the platform. Three steel yokes bundle the forms into a package. As shown in the accompanying sketch the platform rests on a lever in turn mounted on a hardwood column that imparts the springiness to the assembly when the pile driver is dropped on the end of the lever.

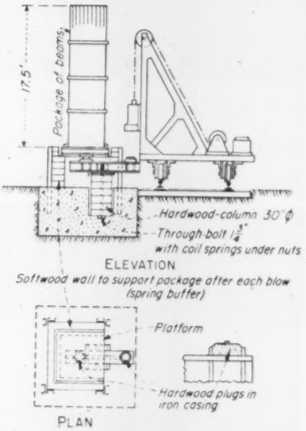
According to Oswald Fischer, the German engineer in charge of the Mangfall reconstruction, the package of forms jumps about ¾-in. under rapid action of the drop hammer. As the forms fill, the height of fall of the hammer is progressively increased. At the completion of the work, the package weighs about 10 tons and has undergone 1200 to 1500 blows. The whole operation requires slightly less than one hour. The pile driver is mounted on rails so that it can be moved to three different package platforms on the production line. About 250 beams are turned out in this manner each week.

The idea of package forms was originated by Dr. Finsterwalder, chief of the engineering department of Dyckerhoff & Widmann the contractor.

It may further be noted that the use of precast beams was practically mandatory because of the shortage of form lumber, but that their use also had the advantage of reducing the number of skilled workmen required, of speeding up erection and of making the work on the high viaduct safer for the men.

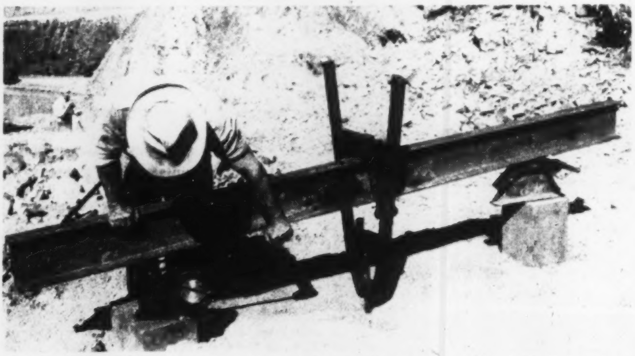

Wedges to tighten frames
3 tie-frames per package (6"[)
6"I
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
6"
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
1⅛" pipe (24 per beam) to form holes for reinforcing
Concrete beam
Wooden parts
6"[

CROSS SECTION of package form containing 33 beams.


17.5'
Package of beams
Hardwood-column 30"ϕ
Through-bolt 1¾" with coil springs under nuts
ELEVATION
Softwood wall to support package after each blow (spring buffer)
Platform
Hardwood plugs in iron casing
PLAN

EQUIPMENT set up for using pile driver to shock concrete placed in the forms.

Hydraulic jack and lever tests spillway anchor-basis



ANCHOR BARS in the spillway channel floor at the Anderson Ranch Dam (southern Idaho) are tested for pull-out strength by means of an I-beam, hydraulic jack and gear puller. U. S. Bureau of Reclamation photo

Illustrating how working assembly is placed as a complete unit in Pittsburgh Arctic meter case. This same construction applies to Pittsburgh Tropic meters.

HOW YOU BENEFIT FROM *UNIT CONSTRUCTION* IN PITTSBURGH DISC METERS

OUTWARDLY all water meters look practically alike. And the "innards" of most disc meter designs follow a familiar pattern. But there's one all-important difference in the Pittsburgh line. It's the *unit assembly of working parts.*

Here is why this construction is better. Since the measuring chamber, disc and intermediate train all assemble as a complete unit, they can be tested as such for alignment and free running qualities *before* being bolted into the meter housing. This design is justly popular with meter maintenance men whose work it simplifies.

Further, since no part of this unit assembly is attached to the meter case, should freezing occur, the entire working mechanism is free to move downward when the bottom casting breaks, thus preventing possible damage.

Want more facts about the benefits of investing in accurate, long lived Pittsburgh disc meters? Then write for bulletins.

PITTSBURGH EQUITABLE METER DIVISION

Rockwell Manufacturing Company

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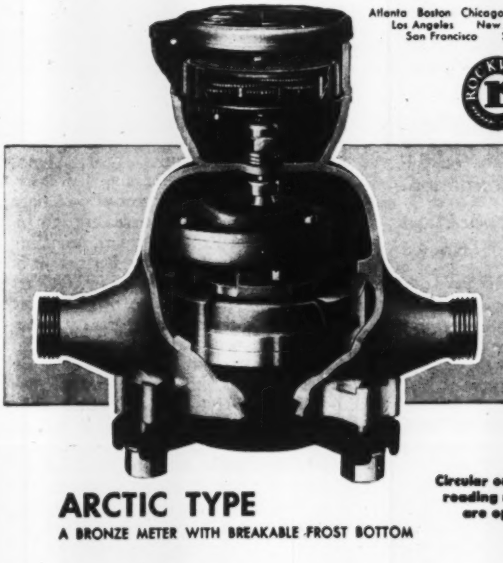
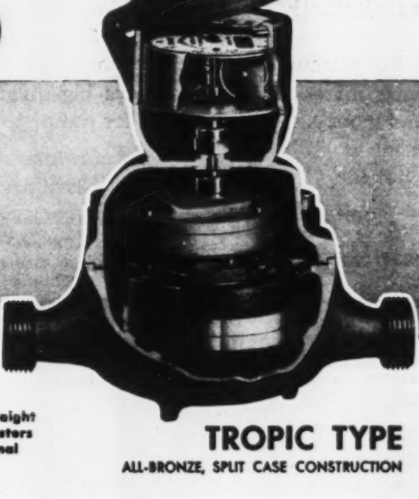
Los Angeles New York Pittsburgh
San Francisco Seattle Tulsa



ARCTIC TYPE

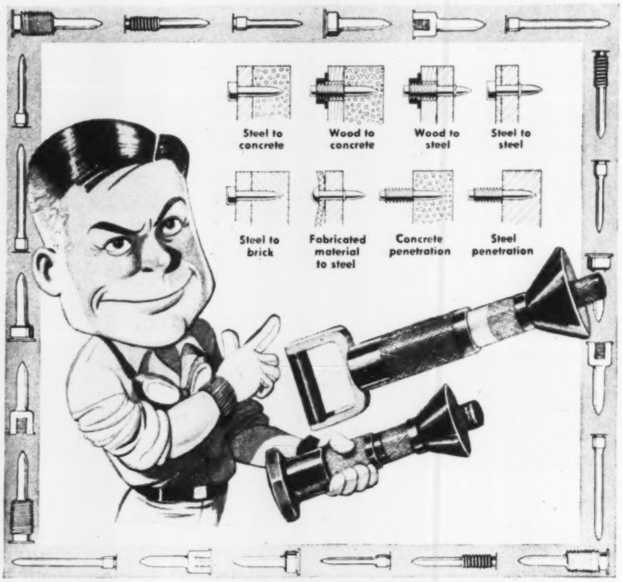
A BRONZE METER WITH BREAKABLE FROST BOTTOM

Circular or straight reading registers are optional



TROPIC TYPE

ALL-BRONZE, SPLIT CASE CONSTRUCTION



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Please send details and arrange for demonstration of RAMSET FASTENING SYSTEM.
Name
Company
Address

NEWS BRIEFS

(*Continued from p. 24*)

Bridges—New legislation in WASHINGTON permits the investment of state funds in Agate Pass toll bridge bonds and the award of a $1,398,439 contract to the Manson Construction & Engineering Co., Seattle, for that bridge . . . Swan, Rhodes & Wooster, Vancouver, B. C., engineers, are engaged in field investigations for the proposed $2,000,000 bridge between AGASSIZ and ROSEDALE, B. C. . . . On March 8 Governor Lane of MARYLAND approved building a $2,500,000 bridge across the Patuxent River . . . The superstructure of the new $27,000,000 toll bridge over the Mystic River between CHARLESTOWN and CHELSEA, MASS., was spanned recently when the steel work was placed in position on the piers. Work on the existing contracts is about one-third completed . . . Commissioner E. W. Eggleston of the Tennessee Department of Highways and Public Works has announced that approval has been given by the PRA for the allotment of federal aid to construct a bridge across the Cumberland River at NASHVILLE, the state to cooperate . . . Corps of Engineers is preparing plans for two bridges and an access highway to Chief Joseph Dam on the Columbia River below GRAND COULEE.

Airports—The Massachusetts Board of Airport Management has voted to urge the legislature to appropriate money for the immediate completion of plans for construction at the Logan International Airport in EAST BOSTON, including the central terminal building . . . Wisconsin State Aeronautical Commission has approved a $1,000,000 allocation of federal funds for improvements at General Mitchell Field, MILWAUKEE . . . State funds will be used to pay for more than three-fourths of the total cost of first stage development of the new CHICAGO International Express Airport, according to engineers of the state department of aeronautics. A total of $1,800,000 has been allocated for the project under the state airport aid program . . . Immediate construction of a fifth great permanent hangar at NEW YORK International Airport at a cost of over $1,500,000 has been authorized by the Port of N. Y. Authority. It will be built by the Stock Const. Co., adjacent to two similar hangars already under construction by that company. All three will be of steel-arch construction, each with a 300-ft. span to accommodate four Boeing Stratocruisers.

UNIT PRICES BID BY CONTRACTORS

Unit price reports, listed below, will be mailed to readers of Engineering News-Record on request at no charge. Address Manager, Business News Department, Engineering News-Record, 330 W. 42 St., New York 18, N. Y. Identify by name of project as used herewith, and be sure to give full mailing address.

Building Alterations, Machine Foundations, Colo.

The U. S. Bureau of Reclamation's genius for adapting its work to the unit-pricing system has yielded a set of these prices in the building field. The project: Foundations for universal testing machine and alterations to the Denver Federal Center building that houses the machine. Bids were taken on Feb. 3, 1949, and the low was $211,432, by Martinson Construction Co., Denver. Contract time is 240 days. Sample units and the low bidders price: Removing concrete in floor and column footings, 110 cy. at $24.80; concrete in column footings, 110 cy. at $44.50; 3-in. cork layer, 3,400 sf. at $2.90; metal-sash windows, 6,000 sf. at $2.60; lightweight concrete, 25 cy. at $97.44. The bids of the low three of nine contractors were in comparable price ranges on most items.

Concrete Water Line Relocation, Illinois

Three bidders ranged from $440,790 to $1,049,907 in their price on removing 3,200 ft. of 54-in. reinforced concrete pipe water line, and installing 5,200 ft. of new pipe, same size, all incidental to construction by the Corps of Engineers, St. Louis District, of the Chain of Rocks Canal on the Illinois side of the Mississippi River, above St. Louis. The work also includes 400 ft. of road relocation, supporting the new line on 34 concrete-pile bents where it crosses a slough, and supporting on 146 timber-pile bents where the line crosses the canal.

The low bid, by River Construction Corp., Granite City, Ill., included unit prices of $1.90 on 87,000 cy. of trench excavation at canal crossings, $1.00 on 18,000 cy. trench excavation for land lines, and $4.00 for stripping earth and removing 3,200 ft. of the old line. The contract was awarded to the low bidder in Nov. 29, 1948, to run 270 days from date of notice to proceed.

Concrete Highway, Indiana

The only bidder, Ryan Construction Corp., of Evansville, Ind., beat the state highway department estimate by $2,281, about one-third of one percent, on 5.518 mi. of concrete highway east of Evansville. The total bid, $622,195, makes the cost per mile $112,757.

Unit price bids were reasonably close to the estimate throughout, with excavation in the higher-volume classifications running a bit high, and the structural and paving concrete on the low side. Common excavation, estimated at 70 cents on 114,398 yd., went for 74 cents; special borrow, estimated 86 cents on 41,354 yd., was bid at 97 cents. Engineer and contractor alike priced overhaul at 10 cents per cu.yd. (16,592 yd.).

On the other hand, concrete for structures was bid at $60.00, $3.00 under the estimate (717.4 cu.yd.) and 73,321 sq.yd. of reinforced concrete pavement went at $3.73, 7 cents below the estimate.

The difference in sodding cost, bid 42 cents and estimated 47 cents, alone exceeded the overall difference: 57,104 sq.yd. at 5 cents, $2,855. The outstanding difference was between the lump sums assigned to traffic control: $2,000 by the state and $7,500 by the contractor.

Unit prices also include contraction joints, various types of pipe ranging from 8-in. to 42-in., subgrade treatment, seeding and signs. Contract was let Jan. 7, to run 220 days. The common labor hourly rate is 90 cents.

Sanitary Sewers, So. Carolina

Sharper figuring in the shallower cuts enabled Boyle Construction Co. of Sumter, S. C., to get a $58,982 contract for 11,615 ft. of 8-, 10- and 15-in. concrete pipe sanitary sewers in Columbia, S. C. The city of Columbia is the owner on this three-month project, which began in January. High bid of three was $74,380.

Samples of bids by Boyle and his nearest competitor, respectively: concrete pipe, 15-in., 2,010 ft., cut 4-6 ft., $3.15 and $3.60; same pipe, 1,266 ft., cut 10-12 ft., $5.50 and $5.60; same pipe, 437 ft. cut 16-18 ft., $11.06 and $9.25. Boyle's tendency to bid high on the deeper excavation was not consistent, inasmuch as he was low on all items in the smaller pipe sizes, but his deep manholes were priced somewhat high; for instance, his bid for a manhole 14-16 ft. deep was $400, compared with $325 by the No. 2 bidder and $365 by No. 3. His shallow manholes, 4-6 ft. deep, were low at $135 apiece.

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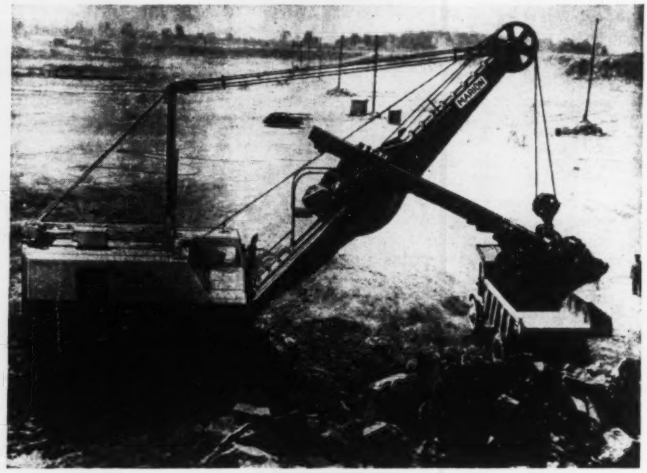
NEW PRODUCTS

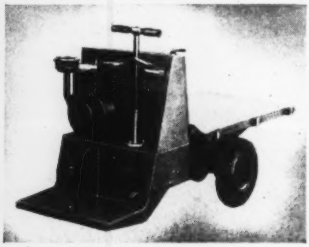


Heavy Duty Electric Excavator

The 111-M Ward-Leonard shovel is for heavy duty service. It is regularly equipped with a 3½-cu.yd. dipper and a 33-ft. boom. Control of the various motor speeds and direction of rotation is obtained by the Ward-Leonard system of generator voltage control. The motor generator set on the 111-M Ward-Leonard consists of an induction motor direct connected to three direct current generators, and an exciter, all are mounted on a self-supporting sub-base. Each generator is of the Ward-Leonard type which is designed for variable voltage control; one supplies power for the hoist motor, one for the swing and propel motor, and one for the crowd motor. —Marion Power Shovel Co., Marion, Ohio.

Electric Paving Breaker

Electricity to operate this 84-lb. breaker is supplied by a 129-lb. dual-voltage gasoline-engine-driven generator. There is no electrical connection between rotor and stator; sealed ball bearings support the rotor shaft. Floating cylinder prevents transmission of shock to driving mechanism. Positive plunger-pump lubricator has automatic switch which stops breaker when oil reservoir is empty. Both breaker and generator make a compact combination that can fit into the trunk of a car.—Homelite Corp., Port Chester, N. Y.

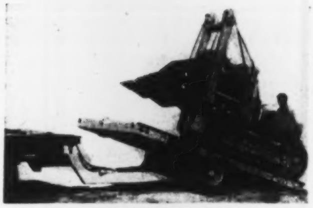


Power Wheelbarrow

The Moto-Bug can be equipped with an optional 4-ft. stake platform body that is easily interchanged with the 10-cu. ft. capacity. There is a hopper body; an optional riding step for the operator, and a dual wheel has been placed on the direct steering mechanism. Better all-around performance is claimed as a result of these changes. Adding the flatbed platform gives the machine a 1,200-lb. capacity for truck handling loose loads, skids and bins. Also, the platform body may be tilted for unloading certain kinds of heavy material.—Kwik-Mix Co., Port Washington, Wis.

Magnesium Ladders

This manufacturer is converting from aluminum to magnesium because of the continued shortage of the former and the great progress in magnesium alloys. Fabricated from a new alloy exhibiting the most satisfactory combination of rigidity, strength, corrosion resistance and wearing qualities, these ladders are as light and sometimes lighter than similar aluminum ladders. Like aluminum, they are spark-proof. Following the same designations as the aluminum ladders they replace, the new magnesium ladders include step ladders of all types, platform and warehouse ladders, and light and heavy duty extension ladders.—Aluminum Ladder Co., Worthington, Pa.

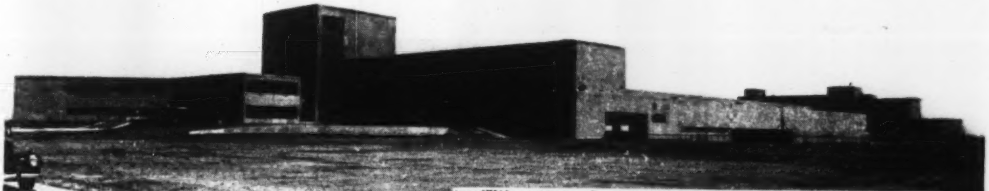


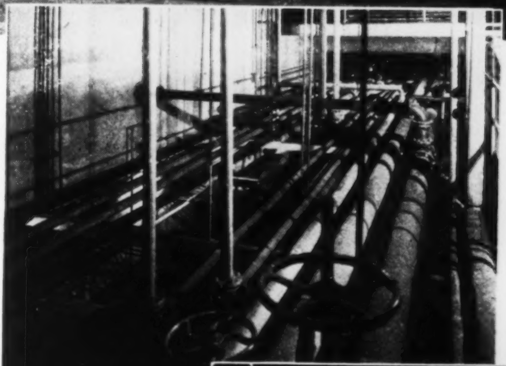
Tilting Trailer

This new 8 to 10-ton tilting trailer is said to speed job-to-job hauling of tractors, mixers, compressors and all kinds of bulky loads. Trailer is easily loaded and unloaded by one man without skids or blocks. It can be used with stakes or box sides for hauling various materials—dirt, coal, etc. Removable axle and drawbar also permit use for transporting pipe, poles, lumber and other long objects.—La Crosse Trailer Corp., La Crosse, Wis.

Hard-Surfacing Powder

Improved hard-surfacing powder, called Surfaceweld A, applied with a carbon electrode, is used to deposit a thin chromium carbide type of hard surface that is highly resistant to abrasive wear and corrosion. Powder forms a paste when mixed with water and adheres to flat and curved surfaces Recommended for hard surfacing of such objects as mixing blades, dipper teeth, bucket lips, scraper blades and cableway drums. Available packed in 1-lb. cans.—Lincoln Electric Co., Cleveland 1, Ohio.

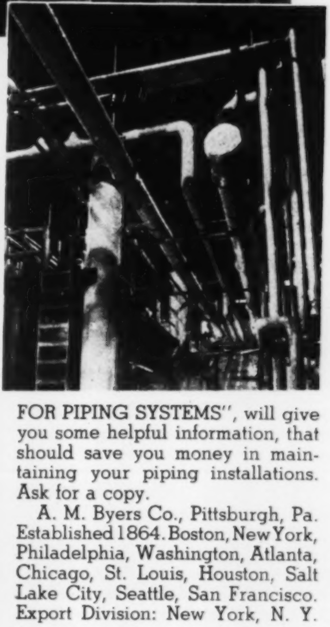




THIS $25,000,000 FILTRATION PLANT PROJECT

filters out corrosion hazards with

BYERS WROUGHT IRON PIPE



In three additional units in a $25,000,000 filtration plant project, started before the war and designed to supply Chicago's rapidly expanding South Side, the designers aimed at maximum life with minimum maintenance. All hot and cold water lines, and all heating lines, in the Chemical Building and the Administration Building are Byers Wrought Iron pipe, installed by W. T. Maloney Co., Plumbing Contractor, and M. J. Corboy Co. and Robert Gordon Co., Heating Contractors. Wrought iron was also used in certain aqua ammonia, flushing and sampling lines. Consulting Engineers on this project are Greely and Hansen, and Alvord, Burdick, and Howson. The design and supervision of construction was done by the engineers in the Department of Public Works, Chicago, Ill.

The importance of selecting the most durable material is obvious with today's cost of maintenance so high. And the ability of wrought iron to withstand the conditions encountered is obvious, because of the remarkable service records it has made in many of Chicago's oldest buildings. For example—a survey conducted in the area revealed wrought iron water lines *still serving* after periods of from 44 to 81 years. The average life to date for 10 installations was 46.9 years. In contrast, a study of 10 buildings in which ordinary piping materials had been used showed an average life *to failure* of 20.2 years.

The reason wrought iron endures in punishing applications is found in the unique structure and composition of the material. Tiny threads of glass-like silicate slag, 200,000 to 250,000 per square inch of section, are distributed through the body of high-purity iron. These threads halt and disperse corrosive attack, discouraging the local pitting that causes vulnerable materials to fail prematurely.

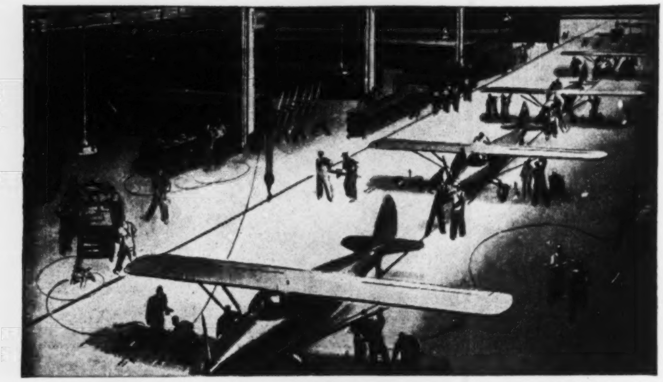
Our bulletin, "WROUGHT IRON FOR PIPING SYSTEMS", will give you some helpful information, that should save you money in maintaining your piping installations. Ask for a copy.

A. M. Byers Co., Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, Salt Lake City, Seattle, San Francisco. Export Division: New York, N. Y.

CORROSION COSTS YOU MORE THAN WROUGHT IRON

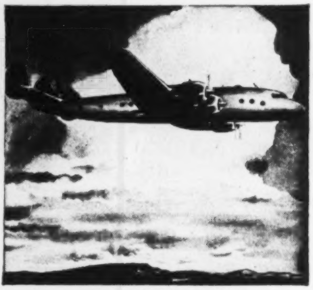
BYERS
GENUINE WROUGHT IRON
TUBULAR AND HOT ROLLED PRODUCTS
[illegible] FURNACE QUALITY ALLOY AND [illegible]

Seven new planes completed ...at a cost of $4.30!



New planes can't fly without control cable, and this manufacturer needed some —fast. He got it the same way he regularly gets many supplies and parts—by Air Express. Ordered in A.M., delivered to plant same day. 500 miles, 28 lbs., Air Express charge only $4.30. So production continued without a break.

$4.30 included pick-up and delivery at no extra charge—and receipt for shipment. All this, plus the *world's fastest shipping service*. That's Air Express—used with profit by every business.



Shipments go on all flights of Scheduled Airlines. Speeds up to 5 miles a minute—no waiting around. Direct service to over 1,000 airport cities, air-rail for 22,000 off-airline offices.

Facts on low Air Express rates:

22 lbs. of new fashions goes 700 miles for $4.73.
6-lb. carton of new jewelry line goes 1,000 miles for $2.24.
Same day delivery in both cases if you *ship early*.

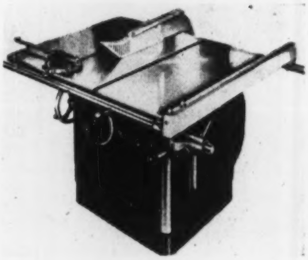
Only Air Express gives you all these advantages: Special pick-up and delivery *at no extra cost. You get a receipt for every shipment* and delivery is proved by signature of consignee. One-carrier responsibility. Assured protection, too—valuation coverage up to $50 without extra charge. Practically no limitation on size or weight. For fast shipping action, phone Air Express Division, Railway Express Agency. And specify "Air Express delivery" on orders.

SPECIFY AIR EXPRESS

GETS THERE FIRST

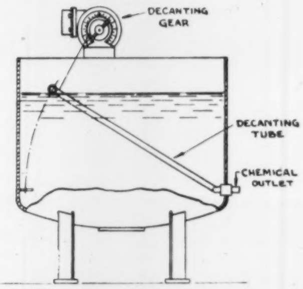
Rates include special pick-up and delivery door to door in principal towns and cities

AIR EXPRESS, A SERVICE OF RAILWAY EXPRESS AGENCY AND THE SCHEDULED AIRLINES OF THE U. S.



Tilting Arbor Saw

Equipped with 12-in. blade, this saw is capable of cutting through $4\frac{1}{8}$-in. stock on a square cut and of splitting a 4-ft. panel into two 24-in. parallel sections. Used with either a 3- or a 5-hp. motor, saw can be set for speeds of 1,600, 2,400, 2,600 rpm. or more. Blade can be tilted to right at full 45-deg. angle at which it can cut stock $2\frac{7}{8}$ in. thick. Arbor is carried on ball bearings. Table is 38 in. long and 4 ft. wide.—DELTA MFG. DIVISION, ROCKWELL MFG. CO., 600 E. Vienna Ave., Milwaukee 1, Wis.



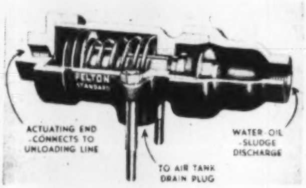
Decanting Gear

This apparatus is used to lower automatically the swing-pipe decanting tube in the chemical agitating tank to feed chemical to the softener in proportion to the raw water flow. Its operation is paced by the raw water meter. The dial indicates the amount of chemical liquid in the tank. The decanting tube is positioned by a flexible cable attached to the shaped and groved drum, the rotation of which pays off cable and lowers the decanting tube.—M. P. ROBINSON, WATER SOFTENER SECTION, WORTHINGTON PUMP AND MACHINERY CORP., HARRISON, N. J.

Fire Retardant Paint

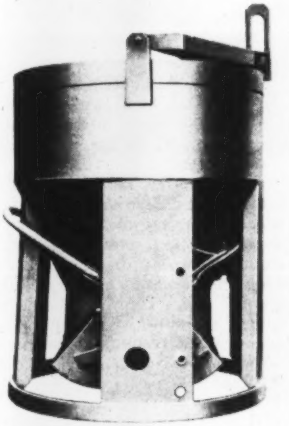
Tests show that Flame-Seal generates no smoke or toxic gases when attacked by fire, or while being applied. It is claimed that when unpainted lumber is protected with a coating of

Flame-Seal the wood can withstand a 2,000 deg. F. blow-torch for 30 min. without any flame spread. It is also said to be moisture and termite proof. It can be washed without lessening its fire retardant effectiveness. — Stallton Chemical Corp., 8-14 37th Ave., Long Island City 1, N. Y.


PELTON STANDARD
ACTUATING END CONNECTS TO UNLOADING LINE
TO AIR TANK DRAIN PLUG
WATER OIL SLUDGE DISCHARGE

Moisture Ejector Valve

The Pelton moisture ejector valve, a port and piston type unit, is used with both commercial vehicle air brake systems and stationary compressors to eject all water, oil and sludge from air compressor storage tanks. Valve operates automatically each time compressor "cuts in" and "cuts out". Tank pressure furnishes the motive force. By maintaining clean, dry air systems, this valve eliminates the danger of frozen or clogged systems, and materially extends the life of air system diaphragms, regulators and other parts which are adversely affected by oil, moisture, anti-freeze, etc. — Monroe Standard, Inc., Galion, Ohio.



Lo-Slump Concrete Bucket

For easy handling of concrete of any stiffness a new Lo-Slump concrete bucket has been introduced in 2, 3, 4, and 8 cu. yd. sizes. It is designed for heavy duty on big dam construction work. This new Johnson bucket combines the advantages of an extra large discharge opening with a fully controlled double clam discharge gate

Mall Vibrators Never Waste a Minute . . .

REG. U.S. PAT. OFF.

$158.00 f. o. b. Chicago

On all types of concrete construction, Mall Portable Vibrators set the pace for mixing and pouring. Their continuous, dependable operation enables contractors to estimate, schedule and complete jobs on time at a profit. For their size, Mall Vibrators place more concrete faster than any other vibrator.

A Size and Model for Every Job. Mall 1½ H.P. One-Man Short Coupled Electric Unit, illustrated above, for placing concrete in small forms, thin wall sections and hard-to-reach areas; also 1½ H.P. Universal Electric; 2 and 4 H.P. Gasoline Engine; and 7500 f.p.m. Pneumatic models. Gasoline Engine units operate other tools.

Your Mall Dealer will gladly help you select the Mall Vibrator best suited to your needs. Write for FREE Booklet "Mall Vibrators."

New Mall One-Man Short-Coupled 1½ H. P. Electric Vibrator

MALL TOOL COMPANY, 7730 South Chicago Ave., Chicago 19, Ill.

OUTPUT LEADERSHIP . . .

The Red Arch Way!

DIG
CARRY
DUMP

Sustained high production is an old story to owners of draglines equipped with Bucyrus-Erie Red Arch buckets. Red Arch buckets consistently dig heaping loads — because teeth and cutting edge are scientifically angled for greatest digging efficiency; because the high arch lets material in fast. Red Arch buckets reduce spillage to a minimum, because they're balanced to carry without bobbing. Red Arch buckets dump fast and clean, because smooth interiors offer no projections to which dirt can cling. And Red Arch buckets have the toughness for thousands of yards of digging before any reconditioning is necessary. They're offered in sizes from ⅜ to 30 cubic yards to meet your dragline needs. 12R49

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

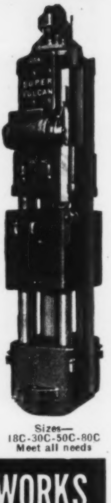
Brute Force
PUTS 'EM DOWN

**SUPER-VULCAN
OPEN TYPE
DIFFERENTIAL-ACTING
PILE HAMMERS
18C, 30C, 50C and 80C**

You can depend on powerful Super-Vulcan every time for fast, efficient pile driving. Line it up on any type of pile under the toughest conditions and you'll see why Super-Vulcan costs less to operate, drives more piles per dollar. It's rugged, durable, simple in design, easy to operate . . . built to meet the requirements of experienced contractors.

The open type fits the same leads, uses the same accessories, as Warrington-Vulcan Single-Acting Pile Hammers.

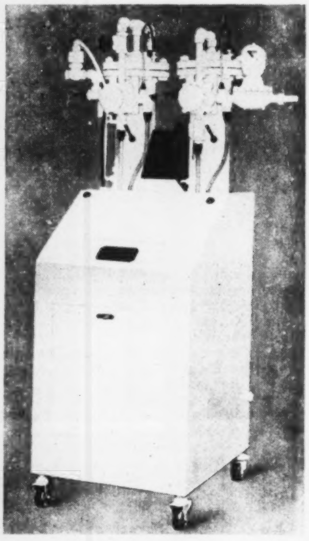
For double driving power on less steam choose Super-Vulcan. Write for details.



Sizes—
18C-30C-50C-80C
Meet all needs

VULCAN IRON WORKS
Since 1852
[illegible] North Bell Avenue
Chicago 12 ---Illinois

operated manually or by compressed air. There are features that prevent segregation when handling mass concrete.—C. S. JOHNSON CO., CHAMPAIGN, ILL.



Demineralizing Unit

This is a portable laboratory ion exchange unit for producing a quality of water equal to distilled in total solids. The model "200" Belco package demineralizing unit gives a maximum flow rate of 60 gph. It is a completely self-contained unit with regenerant containers concealed in the cabinet. Tanks are rubber-lined. It is completely assembled and loaded, ready to be connected to the raw water line. Electronic controls assure automatic shutoff when a predetermined degree of impurity in the demineralized water is reached. There are other Belco models with flow rates up to 2,000 gph. — BELCO INDUSTRIAL EQUIPMENT DIVISION, INC., 102 IOWA AVE., PATERSON 3, N. J.

Electric Paving Breaker

Electricity to operate this 84-lb. breaker is supplied by a 129-lb. dual-voltage gasoline-engine-driven generator. There is no electrical connection between rotor and stator; sealed ball bearings support the rotor shaft. Floating cylinder prevents transmission of shock to driving mechanism. Positive plunger-pump lubricator has automatic switch which stops breaker when oil reservoir is empty. Both breaker and generator make a compact combination that can fit into the trunk of a car.—HOMELITE CORP., PORT CHESTER, N. Y.

Manufacturers' Publications

Tournapull and Tournadozer—Two new broadsides have been issued to describe the "B" Tournapull and the "B" Tournadozer. In the former, an overhead cutaway diagram of the machine shows and explains the features of this big earthmover. The latter lists the features of size, power and speed, basic specifications, etc. of the Tournadozer.—R. G. LETOURNEAU, INC., PEORIA, ILL.

Cranes—A bulletin tells all about Gar Wood cranes which are full-powered in all operations—hoist, boom and swing—with an individual control for each function. Sensitive control and rugged strength makes these cranes suitable wherever heavy valuable equipment such as transformers, motors, building materials, cast iron parts and machinery are to be handled.—GAR WOOD INDUSTRIES, INC., WAYNE, MICH.

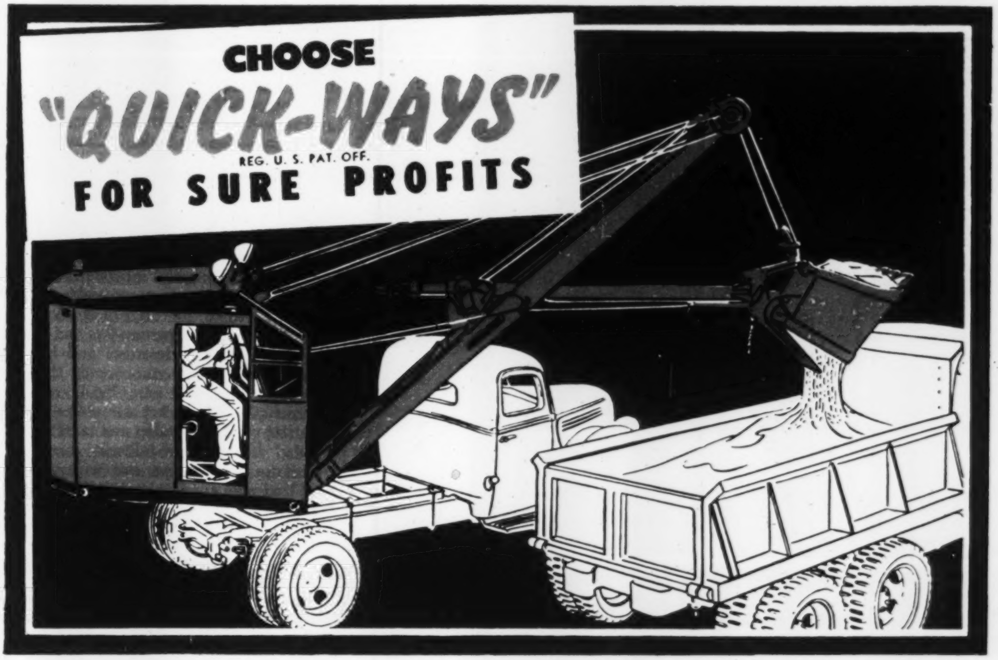
Diesel Tractor—A new publication presents the design features and range of application of a 32-hp. track-type tractor. Profusely illustrated and graphic in content, the booklet portrays the engineering of the product, its manufacture and its application in a wide range of chores.—CATERPILLAR TRACTOR CO., PEORIA 8, ILL.

Adjustable Steel Forms—The use of adjustable steel forms to effect economies and attain speed in the construction of concrete bridge railings, on varying grades, is the subject of a folder by Concrete Forms Corp. This is the first of a series of pamphlets describing the use of steel forms for special purposes in poured concrete. It contains complete drawings of "Details of Steel Form for Concrete Bridge Railing" and "Forms for Concrete Bridge Railing—Assembly of Form Panels."—ARMSTRONG, SCHLEIFER & RIPIN, 11 WEST 42ND ST., NEW YORK 18, N. Y.

Hand Power Cutter—(Leaflet) Redesigned line of hand power cutting tools for bolts, rods, wire, cable, chain, bars and metal of all kinds. Recent improvements include curved toe-in handles which decrease arm spread and wrist bend facilitating an easier and stronger pull. Also broad rounded palm-fit grip to reduce fatigue. Cutters have no protruding screws or bolts to catch.—H. K. PORTER, INC., SOMERVILLE, MASS.

CHOOSE "QUICK-WAYS" FOR SURE PROFITS

REG. U. S. PAT. OFF.



PORTABILITY AND CAPACITY . . . these are the fundamentals you KNOW you want in a truck shovel. You get PORTABILITY in a *"QUICK-WAY"* because it is built of steel for lightness and strength, no heavy counter-weights to slow you down. You get CAPACITY because balance and stability are designed into your *"QUICK-WAY"*.

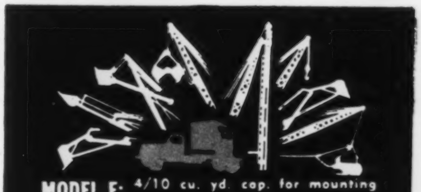
In addition you get SPEED . . . PERFORMANCE . . . VERSATILITY . . . INTERCHANGEABILITY . . . SIMPLICITY . . . ECONOMY OF OPERATION . . . LOW FIRST COST . . . LOW MAINTENANCE . . . and EXTRA PROFITS.

A *"QUICK-WAY"* mounts on ANY standard truck of proper size to go anywhere a truck can go at truck speed. A *"QUICK-WAY"* is CONVERTIBLE IN MINUTES from Shovel to CRANE, DRAGLINE, CLAMSHELL, PILE DRIVER, SCOOP, TRENCH-HOE or BACK FILLER. You buy only the attachments you want. A *"QUICK-WAY"* is simply built, with many interchangeable parts, all easy to service . . . and durable.

THE FUNDAMENTALS built into every *"QUICK-WAY"* add up to sure profits on a small investment, with one of the most useful machines you can own.

NO MATTER WHAT OTHER EQUIPMENT YOU OWN, you need *"QUICK-WAYS"* too. There's a *"QUICK-WAY"* owner near you; ask HIM.

- Service available from Distributors strategically located throughout U. S. Others worldwide



MODEL E: 4/10 cu. yd. cap. for mounting on any standard 5-ton truck.

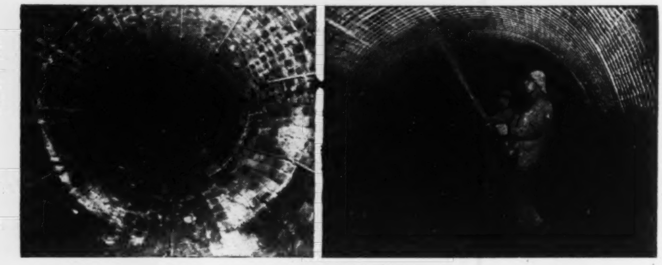
MODEL J: 1/4 cu. yd. cap. for mounting on any standard 1½-ton truck

For speed, portability, economy of operation, and adaptability to a wider range of jobs, nothing of comparable size equals a "Quick-Way" Truck Shovel.

"QUICK-WAY" TRUCK SHOVEL CO.

DENVER, COLORADO

"GUNITE" RENEWS OLD BRICK SEWERS



These pictures show how we are rebuilding nearly four miles of combination sanitary and storm sewers at Bloomington, Illinois by lining them with mesh reinforced "GUNITE."

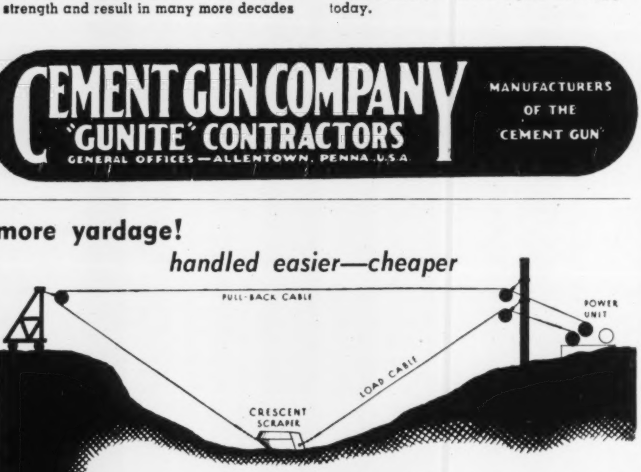
Erosion of mortar joints and dislodged bricks made many sections of these 65 year old sewers both dangerous and inefficient. The new "GUNITE" linings will restore them to greater than original strength and result in many more decades of useful service at a fraction of the cost of new sewers.

All work is done without opening streets. Sewer service is maintained by installing temporary flumes or by-passing through relief sewers.

This job and many other profitable uses of "GUNITE" are illustrated and described in our new 64-page General Bulletin A2400. Send for your free copy today.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

more yardage!
handled easier—cheaper



with a SAUERMAN SCRAPER

Picture shows a Sauerman Crescent scraper bucket delivering a 5-ton load of gravel to crusher at large screening plant. Digging into a hill over 400 ft. from crusher, scraper makes twenty-five round trips or more every hour, all day long, bringing in a heaping load every trip.

Continuously, steadily the powerful Sauerman Crescent scoop goes back and forth—making more hauls per day—delivering more yardage *and doing it for less cost.* Ground conditions mean nothing to Sauerman Power Drag Scrapers—where digging is toughest, Sauerman is strongest.

Payroll savings too. Only one man is needed to control the entire operation of the machine and handle the small maintenance. Extreme simplicity of design and construction make the dependable, high efficiency of Sauerman Scrapers long lasting. Fuel requirements, either Diesel, electricity or gasoline, are very small on basis of yardage handled.

FIND OUT MORE ABOUT THIS REMARKABLE MACHINE
WRITE TODAY FOR LARGE ILLUSTRATED CATALOG

SAUERMAN BROS. Inc.
532 S. Clinton St. Chicago 7, Ill.

Masonry Drills—A new folder has been prepared describing applications and advantages of a new line of spiral fluted carbide tipped masonry drills. The folder lists diameter, shank length and overall length and gives prices on each size. Sets and kits of assorted sizes are also illustrated and priced.—SUPER TOOL CO., 21650 HOOVER ROAD, DETROIT 13, MICH.

Thermocouples and Protecting Tubes—A complete new 40-page illustrated manual provides information on selection of proper thermocouples and protecting tubes, methods of checking thermocouples and pyrometers and installation data. It describes and lists current prices on thermocouples, thermocouple wire, lead wire, heads, connectors, plug and socket assemblies, insulators, protecting tubes and radiation heads. Temperature-milivolt curves, resistance tables, pipe and wire sizes and lead wire conduit capacity are furnished in chart form in a separate section of the book.—WHEELCO INSTRUMENTS CO., 847 W. HARRISON ST., CHICAGO 7, ILL.

Hauling Scrapers—(16-p. booklet) Titled "Caterpillar Scrapers at Work," this publication deals with problems of earth moving. Describes loading, hauling and spreading jobs done by scrapers with diesel track type tractors. Numerous photographs illustrate typical applications.—CATERPILLAR TRACTOR CO., PEORIA, ILL.

Spiral Conveyor—(48-p. catalog) Covers applications, how to specify, horsepower formulas, etc. All equipment listed conforms to new industrial standard dimensions. Six principal types of spiral conveyor are listed: sectional flight, helicoid, mixer, cut flight, ribbon and cast iron. Selection tables list the various classes of material which can be effectively handled by spiral conveyors and indicate the proper type to use. Capacity tables show the proper size of conveyor to use and the power required. There is also a page of drawings constituting a guide for laying out a standard conveyor.—JEFFREY MANUFACTURING CO., COLUMBUS 16, OHIO.

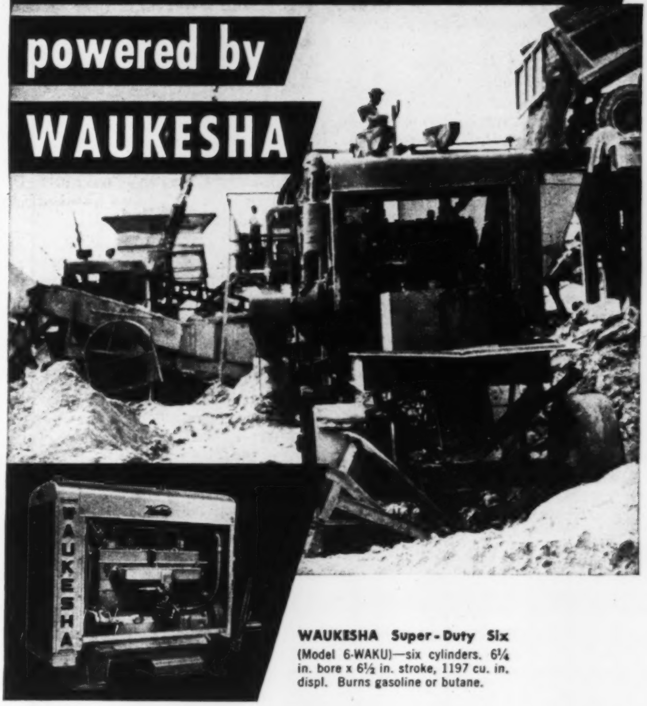
Precast Gypsum Roof Decks—(12-p. Pamphlet) Discusses function, utility and limitations of use of precast structural gypsum roof plank, reinforced on all four edges with galvanized sheet steel formed into tongues and grooves and also reinforced with welded steel mat. Included also are specifications and special instructions for unloading, handling, hoisting, placing, cutting and use of clips and nails.—UNITED STATES GYPSUM CO., 300 W. ADAMS ST., CHICAGO 6, ILL.

Manufacturers' Activities

Sales—Robert J. Loskill is assistant manager in the governmental sales division of the CATERPILLAR TRACTOR Co., Peoria, Ill. . . . J. A. Packard is manager of original equipment sales of the FULLER MFG. Co.'s transmission division, Kalamazoo, Mich., and L. C. Butler is manager of service sales. . . . New sales managers of the electrical wire and cable department, U. S. RUBBER Co., are C. W. Short, Boston, Mass.; J. D. Drohan, New York City; H. J. Cluver, Philadelphia and Baltimore; C. C. Hronek, Atlanta, Birmingham and New Orleans; E. W. Renfree, Detroit, Cleveland and Pittsburgh; G. E. Hubrig, Chicago, Milwaukee and Minneapolis; L. E. Dickinson, St. Louis, Cincinnati and Indianapolis; A. B. Gangiver, Kansas City, Tulsa, Omaha and Denver; R. S. Keith, Dallas and Houston; and L. M. Guibara, Los Angeles, San Francisco, Portland, Ore., Seattle, and Salt Lake City. F. P. Combier is sales manager and R. C. Cassidy, chief engineer for Uskon electrical heating panels at New York. . . Edward B. Hill, formerly general sales manager of GAR WOOD INDUSTRIES, INC., Wayne, Mich., has been appointed vice-president in charge of sales . . . STANDARD GYPSUM Co. of California has transferred Dick Crowle to Sacramento and appointed Jack Feely to cover San Francisco and Peninsula sales . . . L. A. Hanson, formerly supervisor of parts and service merchandising, motor truck division, INTERNATIONAL HARVESTER Co., has been appointed manager of the east-central region, and J. C. Bulleit succeeds Mr. Hanson. W. M. Parrish, assistant sales manager, manufacturers' sales, industrial power division, has retired after more than 24 years . . . N. J. Thompson is sales representative in the Rocky Mountain and west coast areas for DRESSER MFG. division, Bradford, Pa.

Harry A. Bittner is supervisor of roof tile sales for the KAYLO INSULATION division, AMERICAN STRUCTURAL PRODUCTS Co., a subsidiary of OWENS-ILLINOIS GLASS Co., Toledo, Ohio . . . Henry Giles is sales manager of the road machinery division, THE HEIL Co., at Milwaukee, Wis. . . . M. S. Downes is now general sales manager of the railway division of THE TIMKEN ROLLER BEARING Co. . . . Leslie Southgate will serve the DETROIT DIESEL ENGINE division, GENERAL MOTORS CORP., as northeastern zone sales representative—in New York,

ARUNDEL CORP. gravel plant
powered by
WAUKESHA



WAUKESHA Super-Duty Six (Model 6-WAKU)—six cylinders. 6¼ in. bore x 6½ in. stroke, 1197 cu. in. displ. Burns gasoline or butane.

● This is one of the Arundel Corporation's sand and gravel plants, near Washington, D. C. Its Pioneer equipment is Waukesha powered for more tonnage . . . faster . . . at low power cost per ton. And for trouble-free operation. That's how to turn out tonnage profitably.

The two power units in this picture are Waukesha Super-Duty Sixes (Model WAKU). That's the tough-to-take-it type—protected against dust and dirt—and rugged all the way, from oil pan to head. Most modern . . . in construction . . . in design . . . for most power per cubic inch displacement. It puts out 225 hp. at 1600 r.p.m. Easily! Eagerly! Efficiently!

Economical to operate. And easily serviced. An overhead valve engine—you just remove the heads and grind the valves wherever it's convenient. Each cylinder is a wet sleeve casting, easily removed from the main case and renewed. Tell you more? All right, send for Bulletin 1139.

Waukesha Motor Company, Waukesha, Wis.
NEW YORK • TULSA • LOS ANGELES

WAUKESHA
POWER UNITS

northern New Jersey and all of the New England states . . . J. H. Oakes is sales manager, enclosed drives, Link Belt Co., Philadelphia . . . Nels H. Fugelsang of the General Electric Supply Corp. has been appointed sales manager of the company's Sacramento, Calif., offices . . . Wm. A. Schaub is manager of the Denver district of the Industrial Products sales department, The B. F. Goodrich Co. and R. P. Russell of the Boston district . . . Consolidated Western Steel Corp., U. S. Steel subsidiary, has opened a sales office in the Exchange Bldg., Seattle, in charge of Hanford Haynes, to serve the Pacific Northwest . . . W. W. Wheeler is sales manager of the Askania Regulator Co., Chicago . . . Eugene G. Sheasby has been appointed general staff manager of the general sales division, U. S. Steel Supply Co. . . . Vice President Chas. H. Caine of the Cornell-Dubilier Electric Corp. supervises the new Midwest direct factory sales office at 605 No. Washington Ave., Chicago.

Distributors – Contractors Syracuse Sales Co., Inc., Syracuse, N. Y., and Contractors Sales Co., Inc., Troy, N. Y., are exclusive dealers for the C. R. Jahn Co. of Chicago — heavy duty low bed trailers . . . Diamond Chain Co., Inc., Indianapolis, Ind., has added these distributors: Apex Power Equipment Co., 4047 West 26th St., and Ray M. Ring Co., 1234 West Washington Blvd., both of Chicago; and W. F. McGraw & Co., 575 E. Milwaukee St., Detroit, Mich. . . . Blaw-Knox Co. and Foote Co. have appointed these new exclusive distributers: LeRoi-Rix Machinery Co., 6403 East Slauson Avenue, Los Angeles, Calif.; Western Equipment Co., 4009 Fairview Avenue, Boise, Idaho; Western Equipment Co. branches in Idaho Falls, Idaho (P.O. Box 96) and Spokane, Wash. (P.O. Box 2196); R. B. Wing & Son Corp., 384-386 Broadway, Albany, N. Y.; and Laurion Equipment, Ltd., 1801 St. Patrick Street, Montreal, Que.

Western Construction Equipment Co., Billings and Missoula, Mont., has been appointed distributor for Parsons Truckliners, Koehring Co., in Montaina and northern Wyoming, and Mitchell Distributing Co., Spruce Pine and Raleigh, N. C., will handle the complete Koehring line of heavy duty construction equipment and products of the subsidiaries —C. S. Johnson, Kwik-Mix and Parsons . . . Merrill-Brose Co., San Francisco is a new distributor for Bucyrus-Erie Co., So. Milwaukee, Wis.

Personalities–H. C. Peters is technical consultant of construction equipment of the Blaw-Knox division . . . J. E. Ehlert is district manager of the northeast territory for The Euclid Road Machinery Co., Cleveland, Ohio . . . R. G. Harmon has become district manager of the industrial and steel tube divisions of The Timken Roller Bearing Co. at Birmingham, Ala. . . . V. A. Schmidt will represent the Nelson Steel Welding division of Morton Gregory Corp. as field engineer in northwestern and central Ohio and northeastern Indiana.

C. Foster Brown Jr., assistant to the president of Ceco Steel Products Corp. has been elected a director . . . John W. Moorhead is product promotion manager for the Building Products division of Great Lakes Carbon Corp.—rock wool building insulation and Permalite plastic and concrete aggregate . . . Edward F. Fisher has been elected president of Gar Wood Industries, Inc. . . . Arthur B. Smith, former assistant editor of *Construction Methods*, has been appointed district manager of the Southeastern district of Amercoat division of American Pipe and Construction Co., with headquarters in Jacksonville, Fla. . . . Wyzenbeek & Staff, Inc., 838 W. Hubbard St., Chicago 22, Ill, manufacturers of Wyco flexible shaft machines, flexible shafts, flexible shaft tools and concrete vibrators, has announced the appointment of Robert L. Burke as general manager.

Deceased–Merryl L. McCarthy, 51, secretary-treasurer of McCarthy Bros. Construction Co., McCarthy-Pohl Co. and Rock Hill Quarry Co., St. Louis, Mo., died Feb. 2 . . . Stanley F. Hill, 64, plant designer for Ford Motor Co., Detroit, died Feb. 18.

Miscellany–Straub Mfg. Co., Oakland, Calif., has granted exclusive licenses to manufacture and distribute Kue-Ken Jaw and Gyratory crushers to Pennsylvania Crusher Co., Philadelphia, and Tutt Bryant, Ltd., Rydalmere, N.S.W., Australia . . . GMC Truck & Coach Division has announced list price reductions on all light duty commercial vehicles from $100 to $150 . . . Kennametal, Inc., has moved its New York office to 11 West 42d St. L. D. Morton is acting manager there.

Caterpillar Tractor Co. is building a new parts depot in Indianapolis, Ind. . . . A research division in the industrial relations department of American Steel & Wire Co. has been established, headed by C. J. Forbes . . . Minneapolis-Honeywell Regulator Co. will buy H. Belfield Co., Philadelphia manufacturer of control valves.

Elections and Activities

G. W. May has been elected president of the Arkansas Chapter AGC; S. M. Dixon, 1st vice-president; M. O. Branton, 2d vice-president; and Ray Metzger, secretary-treasurer.

Detroit chapter, Associated General Contractors, has elected W. R. Bryant president. Other officers: C. H. Richert, first vice-president; B. B. Jackson, second vice-president; Glenn Lamont, treasurer; and L. M. Denton and R. E. Pickett, directors. Continuing as secretary-manager is Ralph A. MacMullan.

Engineers and architects of Georgia have formed the Engineers and Architects Council of Georgia. Eugene W. O'Brien was elected president. Other officers are: Cherry Emerson, vice-president, and George N. Normancy, secretary-treasurer.

E. D. Sloan has been elected president of the Carolinas branch, Associated General Contractors of America, Inc. He succeeds W. T. Potter, resigned. Other officers: N. K. Dickerson, vice-president; C. P. Stret, treasurer; and R. Patten, executive secretary.

The Massachusetts Public Building Commission recently elected Alan J. Potter, president; Ernest A. Johnson, Frank W. Crimp, Irving B. Parkhurst, and Frederick Guffey, vice presidents, and John A. Chambers, secretary.

Charlie Nourse new president of the Building Contractors Assn. of Indianapolis, Ind., succeeding L. W. Brandt. Vice-presidents are Arthur Vehling and F. A. Wilhelm, secretary-treasurer, Ralph Iula, executive secretary, C. O. Holmes, assisted by E. J. Ulmer, has charge of the assn.'s apprentice training program.

Officers of Carolinas Branch AGC, are: E. D. Sloan, president–succeeds W. T. Potter, resigned; N. K. Dickerson, vice-president; C. P. Street, treasurer; and R. Patton, executive-secretary; Directors: R. Pinnix, W. F. Bowe, Hal S. Crain, L. G. Merchant, E. G. Skinner and C. N. Whilden.

Jas. F. Wishart, Jr., is president of the Florida West Coast chapter AGC. Other officers: R. E. Secord, vice-president, J. L. Cone, secretary, and Albert H. Jones and E. M. Scott new directors.

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Permanence

JOBS that call for a permanent pile foundation call for Raymond equipment, Raymond experience and Raymond skill. From preliminary soil investigation to completed foundation, you can be sure that the Raymond organization will work swiftly, accurately and at minimum cost.

Raymond cast-in-place concrete piles cannot be excelled for permanence and carrying capacity. Many types are available to meet any subsoil condition. With Raymond on the job, full compliance with job requirements is assured.

Pictured above is Raymond's 1300-pile foundation for the new Caterpillar Tractor Company Building LL at Peoria, Ill.

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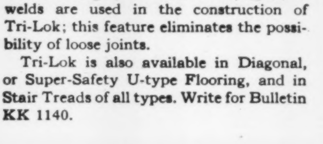

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The South Florida Chapter, Associated General Contractors of America, had elected Joseph J. Orr president. Other officers are Frank J. Rooney and A. L. Turner, vice-presidents, and George Preston, Secretary-Treasurer. Directors are James M. Albert, Joseph R. Edwards, M. R. Harrison, Jr., D. H. Reynolds and C. F. Wheeler.

National Concrete Masonry Association has elected Harold L. Spaight, Cedar Rapids, Ia., president, succeeding George W. Katterjohn, Paducah, Ky. Carroll Strohm, Nashville, Tenn., succeeds Spaight as secretary-treasurer. Vice-presidents re-elected: Glenn C. Barnes, Syracuse, N. Y.; Cloyd Fellanbaum, Toledo, Ohio, and Philip Paolella, Hamden, Conn. Directors elected for five-year terms, Herbert F. Geist, Cleveland; Lewis Lloyd, New Orleans; and Sam Paterzo, Baltimore.

Frank X. Connelly has been elected president of the Rochester, N. Y., Builders' Exchange. Other officers: vice-president, Maurice A. Rowley; secretary, Harry C. Taylor, and treasurer, Harry Williams.

Harry N. Howe has been elected president of the Engineers Club of Memphis, Tenn. Other officers: Paul Gieselmann, vice-president; Franklin Cassen, re-elected secretary treasurer.

The Texas Society of Professional Engineers has elected: O. H. Koch, president; Mason Lockwood, first vice-president; and Marvin C. Nichols, second vice-president. Directors: Nat Hardy, M. M. Anderson, Bayo Hopper, R. R. King, S. H. Fagadau, and W. O. Washington.

The Virginia Society of Professional Engineers has elected these officers: Lester V. Johnson, president; John B. McGaughy, first vice-president; James A. Rives, second vice-president; Edward Ruehl, secretary-treasurer; James S. Miller, director at large; and Herberg Mannuccia, national director.

Walter F. Buckholz has been elected president of the Builders' Exchange of Minneapolis, Minn. Other officers: C. H. Anderson, 1st vice-president; H. V. Burnett, 2d vice-president; A. R. Jensen, treasurer; and Wm. J. Meyer, secretary and general manager.

Herbert Moore has been elected president of the Wisconsin Society of Professional Engineers. Other officers: E. J. Kallevang, 1st vice-president; F. T. Agthe, 2nd vice-president; O. J. Muegge, secretary; and L. M. Schindler, treasurer.

Men and Jobs

O. R. Dinsmore, who has been with the Washington State Highway Department since 1922, has been named acting director to succeed **Clarence B. Shain.** Graduated from the University of Montana in 1911 with a Bachelor of Science degree in engineering and from Montana State College in 1918 as a civil engineer, Dinsmore was with the Chicago, Milwaukee, St. Paul & Pacific Railway Co. before joining the highway department.

Orla Casad, superintendent of the Crocker-Huffman Land & Water Co. water department in Merced, Calif., has retired after 50 years' of service. He was succeeded by **Guy Cornell**, former engineer for the Fresno Water Department.

W. E. Witt, formerly a partner in the Witt-Haynes Construction Co., at Durham, N. C., has been elected partner and president of the Triangle Construction Co., Durham general contractors.

R. M. Rothgeb, engineer, and business manager of the N. C. State Hospitals Board of Control, for past five (5) years has resigned to go with L. E. Wooten and Co., Inc., consulting engineers, of Raleigh, N. C.

Thomas L. O'Kelley, of Winston-Salem, N. C., formerly with the George C. Kane Construction Co. at Greensboro, N. C., and with the Blythe Brothers Construction Co. of Charlotte, has been named co-ordinator of the Charlotte Area Construction Co.'s apprentice training at Charlotte.

Raymond H. Lampi is engineer for Cheynne County, Kan., succeeding Lester Moody.

W. Vance Baise, who has been with the North Carolina State Highway Commission for 28 years and chief highway engineer for the last 13 years, has resigned. **W. H. Rogers**, administrative assistant to the chairman of the commission, was named to succeed him. Rogers, a graduate of the North Carolina State College School of Engineering, served as a first lieutenant with the Army Corps of Engineers during World War I, and joined an engineering firm at Tarboro, N. C., in 1919. In 1929 he went to Belhaven, N. C. as drainage engineer for the Norfolk Southern Land Co. at Greenville, and became district state highway engineer at Raleigh in 1931. Baise, who recently was named national vice-president of the American Association of the State Highway Officials, was asked to resign by W. Kerr Scott, the new governor.

Carl McCoy has been appointed Whatcom County engineer at Bellingham, Wash., on an acting basis, to succeed **T. P. Scholz,** who resigned to become Bellingham city engineer. McCoy had held the position before the war.

Winston H. Carrington, civil engineer, of Charleston, S. C., has become associated with Michael Baker, Jr. Inc., at Harrisburg, Pa.

Appointment of **George W. Vaught** of Lawrence, Kan., of the engineering faculty of the University of Kansas, as structural engineer for the Portland Cement Association in Ohio is announced.

Merton Hodge has been appointed town engineer of Unionville, Conn. He has performed the engineering work of the town for a number of years.

George Parkman, Jr., has resigned as director, building construction and maintenance, of the Westinghouse Electric Corp. to become president of the Mountaineer Engineering Co., Pittsburgh, Pa., contracting and engineering firm, with branch offices at Fairmont, W. Va., and Mansfield, Ohio.

William H. Sweet, an employee of the U. S. Bureau of Reclamation since 1941, has been named project engineer for the agency's San Luis Valley Project, with headquarters at Monte Vista, Colo. Mr. Sweet, who has been acting engineer in charge of the agency's work in the project area since 1947, succeeds **Don M. Forester**, now in charge of constructing a reclamation project at Lemon, South Dakota. Under Mr. Sweet's administrative direction, the bureau plans to begin construction next spring at Platoro Dam on the Conejos River, 45 miles southwest of Monte Vista, Colo.

Loren W. East, Los Angeles, consulting engineer, has been appointed public utility engineer for Oakland, Calif. A graduate of the University of California, he served with the California Public Utilities Commission from 1930 to 1943, when he resigned to enter private practice. During the war he renegotiated war contracts in heavy construction work performed under Army contracts.

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Charles Emile Cassagne, Jr., head of the engineering division of the New Orleans city engineer's office, has been appointed supervisory engineer for the railroad terminal board. He will represent the city and the board on matters connected with the Union station and grade separation program.

Allan F. Stewardson is city engineer for New Westminster, B. C., succeeding **Russell E. Potter**, who resigned to become executive assistant engineer for the Fraser River Control Commission, federal government organization. Stewardson, University of British Columbia engineering graduate, has been assistant city engineer for the last seven years.

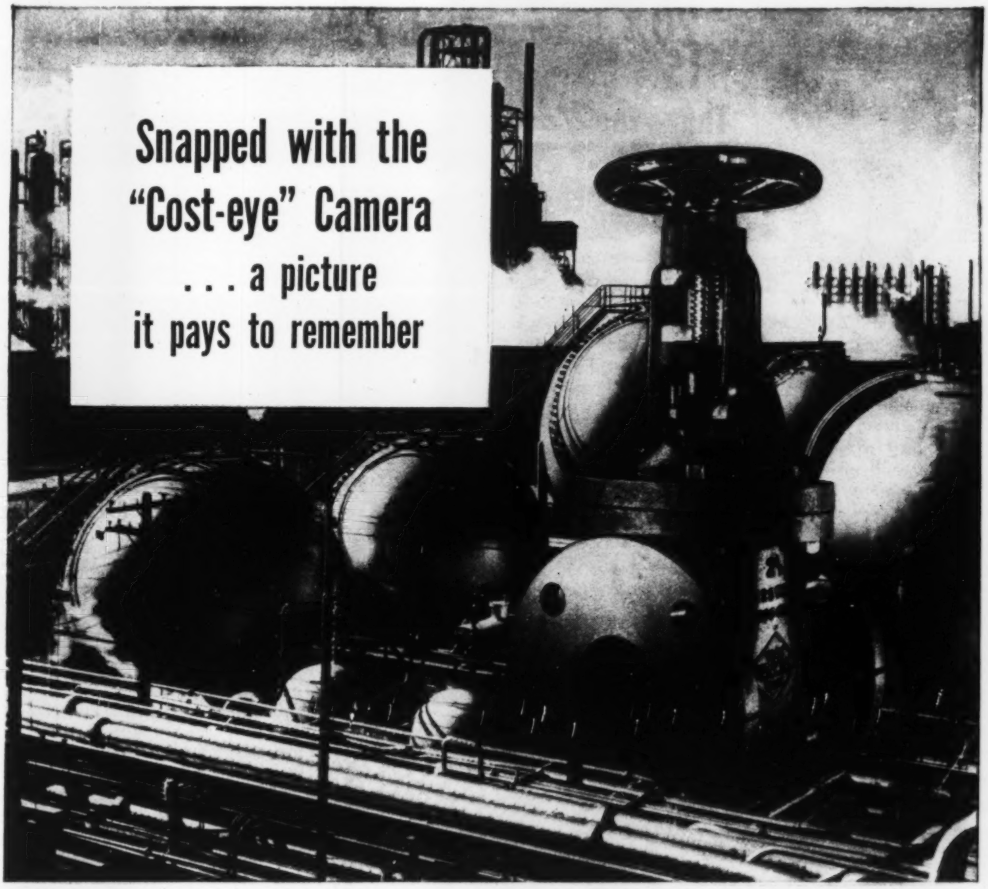
David H. Harker has resigned as chief engineer of the Indiana Flood Control & Water Resources Commission, to accept the post of secretary-engineer of the Indiana Drainage Association. As chief flood control engineer since 1945, he directed surveys and plans for major Indiana water control projects, many in cooperation with the Army Corps of Engineers. He is a Purdue University graduate. Formerly he was chief engineer of the Ohio Water Resources Board.

Charles S. Sanderson, assistant general manager of the Atlantic Coast Line Railroad, is now assistant to the president, Wilmington, N. C. He obtained his civil engineering degree from Mississippi State College and entered the railroad's service in 1923 as a rodman. From 1933 to 1942 he was with the Charleston and Western Carolina Railroad, as roadmaster and assistant superintendent. During the war he served as a lieutenant colonel with the Army's 703d Railway Grand Division in the European Theater, returning to the Atlantic Coast Line in 1945 as principal assistant engineer.

Lyle B. Porter has resigned as director of research for the Illinois Water Treatment Co., Rockford, Ill. He is establishing a consulting engineering service, specializing in water treatment, ion exchange and industrial waste disposal, at 1707-15th Ave., Rockford.

O. K. Frink, for 30 years in the county engineer's office of Polk County, Iowa, is now county engineer in place of **F. O. Laing**, retired.

Harrison F. Gonnerman is now assistant to the vice-president for research and development of the Portland Cement Association, succeeding **F. R. McMillan**.



Snapped with the "Cost-eye" Camera . . . a picture it pays to remember

IF A CAMERA could be constructed with an eye to costs, this is the picture you'd get of a synthetic rubber plant. By showing *all valves* as *one valve* it brings into proper perspective the valve investment in *any* plant, *any* large building where operation involves fluid control. Collectively, valves represent a major expenditure . . . yet too often, they are selected with "petty cash" consideration.

IT WILL PAY MANAGEMENT to keep this picture in mind. With wages and material costs the highest ever, valve maintenance costs must be watched as carefully as operating expense of larger plant units.

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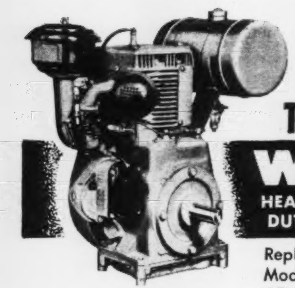

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Replacing the universally popular Wisconsin Model AEH Air-Cooled Engine, the new Model AEN turns up 7.5 H.P. at 3,000 R.P.M. as against 6.1 H.P. at 3,200 R.P.M. delivered by the engine it replaces. Weight: 110 lbs., as against 130 lbs. for the AEH.

All this has been accomplished without sacrificing heavy-duty crankshaft capacity or any of the traditional Wisconsin features such as: Tapered roller bearings at *both* ends of the drop-forged crankshaft; oil pump and spray lubrication; weather-sealed high tension outside magneto with impulse coupling for quick starting and dependable ignition in any climate, in any weather; flywheel-fan air-cooling — extremely efficient at all temperatures from sub-zero to 140°F.

The Model AEN represents a major achievement in the design and construction of a light weight heavy-duty power unit for all-purpose power applications. Write for Bulletin S-109.

The Wisconsin line includes 4-cycle single cylinder, 2- and 4-cylinder models in a complete power range from 2 to 30 H.P.

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WISCONSIN MOTOR CORPORATION
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STEELINE FLAT TRUSSES
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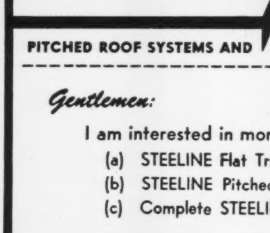

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OBITUARY

Howard L. Maddocks, 73, Newark, Ohio, construction engineer for 40 years, and a graduate of the University of Maine in 1907, died March 16.

W. W. Pardon, 56, who had served the state of Kentucky 12 years as a road engineer, died in Louisville, March 17. Latterly he had been county engineer at Clanton, Ala.

Thomas T. Flagler, 68, who served in 1929 as the eleventh president of the Associated General Contractors of America, died in Atlanta, Ga., March 20. Mr. Flagler was head of Flagler Construction Co., Atlanta. He was a graduate of the University of Pennsylvania, and had been in the contracting business since 1911.

Balie Peyton Legaré, 84, died March 3 in North Hollywood, Calif. Educated at Hobart College, N. Y., and Columbian University, Washington, D. C., he spent the early part of his engineering career in street railway construction in and about New York and Philadelphia. Later he was chief engineer on construction of the London Underground Railway, and other underground railways in Europe. He went to San Francisco in 1906, arriving there three days after the earthquake and fire, and was named chief engineer in charge of rehabilitation and construction of the Market Street Railway. He retired from that company in 1941 after 35 years of service.

Chester F. Lewis, 54 died in Richmond, Va., March 16. He had been director of construction, supply and real estate for the Veterans' Administration in Virginia. A graduate of M.I.T., he served overseas in the war and at one time was a civilian employee of the Army Corps of Engineers at Wilmington, N. C.

Robert E. Willis, Washington Court House, Ohio, Fayette County engineer, died Feb. 19.

George E. Dowling, 80, died March 7, at St. John, N. B. He had been chief draftsman in the engineering departments of the Canadian Pacific Railway at Montreal, and Canadian National Railways at St. John, N. B., and Moncton, N. B., during the last 44 years.

Benjamin R. Wood, 66, Portland, Ore., chief of the engineering division of North Pacific division, Corps of Engineers, died March 13. As civilian head of the engineering branch, he had supervision of all rivers and harbor work and dam construction in Oregon, Washington, and Alaska. Except for a brief period with his own engineering firm in San Francisco, Mr. Wood had been with the Corps of Engineers since 1908. He served in both world wars and was decorated for meritorious work in the last one. He supervised construction of the Pershing Memorial stadium in Paris.

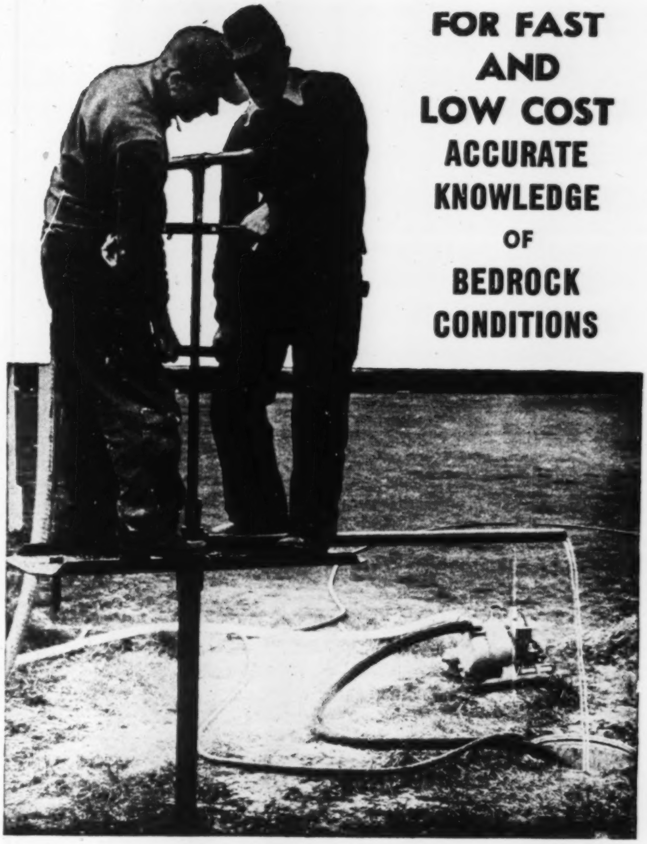
Herbert N. Morris, 47, Sandusky, Ohio, president and founder of Colmor, Inc., construction specialties firm, died March 1. He was a member of the Sandusky Planning Commission, and before entering military service in the Seabees in 1943, had been employed in the engineering department of the Plum Brook Ordnance Works. He atended Defiance College and subsequently worked in engineering for the A. Bentley & Sons Co. of Toledo; the Austin Co. and Boldt Construction Co., Cleveland: Parklap, Inc., of Detroit and New York; Smith, Hinchman & Grylls of Detroit; Thompson-Starrett Co. of New York and Miami, and H. L. Bever of Cleveland. He formed Bever, Morris, Inc., to specialize in building water and sewage treatment plants. He joined the Seabees as lieutenant, and was discharged as lieutenant commander.

William D. Taylor, 59, Elyria, Ohio, former civil engineer for the Ferguson Co., Cleveland, died March 12.

Fred H. Burnett, 67, Toledo, Ohio, superintendent of the Toledo Lakefront Dock Co., died Feb. 25. He helped plan the $18,500,000 dock which was completed in 1948, and was supervisor of its operation. He was a charter member of the Toledo Port Commission.

G. Warren Emery, 55, partner in the consulting engineering firm of Emery, Marker & Emery, Toledo, Ohio, died Feb. 23. He was known in the Midwest for his development and installation of electric power plants for municipalities.

Frank S. Badger, 81, hydraulic engineer died at Arlington, Ill., March 17. He was a graduate of M.I.T., 1893, and was identified with hydraulic engineering in the west, Mexico, and South America. From 1909 to 1944 he was with J. G. White Engineering Co., London. As an authority on construction materials, he was in charge of inspection of AEF materials in World War I.



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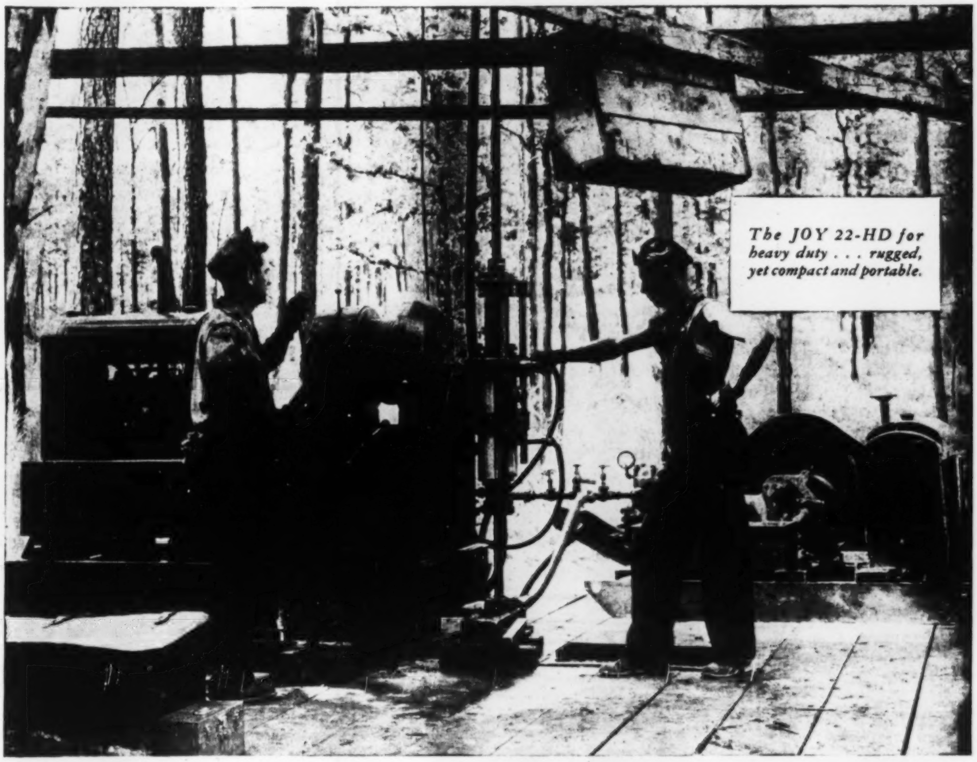

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

April 15

Ia., Ottumwa—City, City Hall, watermains, $85,000.

LOW BIDDERS

Mass., Pittsfield—City, Comrs. P. Wks., City Hall, Mar. 18, pipeline, Cleveland Brook Reservoir to First and Burbank Sts., Contr. 5, from Demos Bros., General Contractors, Inc., 1709 Page Bldg., Springfield, **$59,300.** CD 3/7—ENR 3/10.

S. C., Greenwood—City, Mar. 16, water distr. line extens., from Ridlehuber & Co., Greenwood, **$28,094.** CD 2/21—ENR 2/24.

Tex., Beaumont—City, City Hall, rejected bids Mar. 13, main pumping station imprvs., expan. LB. **$206,951.** CD 3/21—ENR 3/24, under LB.

CONTRACTS AWARDED

Ga., Douglas—City, 500,000 gal. water tank, to R. D. Cole Mfg. Co., Newnan, **$70,500.**

Miss., Verona—Town, Town Hall, water distr. sys., to W. W. Dunn & Co., 122 N. President St., Jackson, **$41,305.** Bids 3/15, awarded 3/17. CD 2/28—ENR 3/3.

N. C., Valdese—Town, O. M. Harrison, mayor, water supply sys., extens., to Boyd & Goforth Co., Pineville Rd., Charlotte, **$85,148.** W. K. Dickson & Co., 404½ S. Tryon St., Charlotte, engrs.

O., Alliance—Bd. Control, Alliance, electrification WW pumping station, to Fairbanks-Morse & Co., 606 S. Michigan Ave., Chicago 5, Ill. **$67,635.** Awarded 3/17.

O., Cincinnati—City, City Hall, 9 and Plum Sts., water lines, 2 story bsmnt., 102x150 ft. brick, structural steel WW pump. station. Contr. 2 general contract to Frank Messer & Sons, Inc., 4612 Paddock Rd., **$744,946.** Est. $903,165. Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs. CD 1/2/46—ENR 1/17/46.

Ore., Portland—Gilbert Water Dist., 5618 S. E. 135 St., installing 11,600 lin. ft. c.i. water pipe, to O. L. Soule, 2645 S. E. 111 St., **$30,382.** John W. Cunningham, Spalding Bldg., engr. Bids 2/24.

Wash., Seattle—City, County-City Bldg., Zone 4, cleaning, lining Cedar River Pipeline 2 between Maple Leaf Reservoir and Lake Union Tunnel Shaft to American Pipe & Constr. Co., 518 N. E. Columbia Blvd., Portland, Ore., **$58,676.** R. W. Finke, city engr. Bids 3/16.

Ont., Yarmouth — Yarmouth Twp., Yarmouth, 6- to 14-in. watermains, Edgeware Rd., Woodwork Ave., Balaclava and Hammond Sts., to Onway Constr. Co. Ltd., 222 Ryding St., Toronto, **$50,000.** F. A. Bell, County Bldg., St. Thomas, engr. CD 3/14/46—ENR 4/4/46.

SEWERS. WASTE DISPOSAL

BIDS ASKED

April 11

Ont., New Toronto (Postal Dist. Toronto)—F. R. Longstaff, 877 Lake Shore Rd., New Toronto, storm sewer for Municipality. Approx. $50,000. Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, engrs.

April 19

Conn., Bristol — City, Sewer Comn., 175 Main St., concrete sewage pump. station. Contr. 4, E. Main St. Plans deposit $10. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs. CD 3/3/44—ENR 3/23/44.

April 20

✝Mo., Liberty—U. S. Eng., 601 Davidson Bldg., Kansas City, outfall sewer, Serial No. Eng. 23-028-49-176.

April 26

Calif., Colfax — City, City Hall, sewage treatment plant. Approx. $50,000. Plans deposit $15. Harry N. Jenks, 63 Crescent Dr., Palo Alto, engr.

LOW BIDDERS

Calif., Empire—Empire Sanitary Dist., Yosemite Hy., Mar. 15, sanitary sewers, Res. 48-1, from Manuel Smith, 313 Syndicate Bldg., Oakland, **$84,876.** CD 3/3.

O., Columbus—City, Div. Sewage Treatment, James H. Blodgett, supt., doubling area, exten. generating station, brick, stone superstructure for engine generators, heavy concrete, poured concrete fdns., from The Christopher Constr. Co., 40 W. Gay St., **$192,000.** CD 11/19/45—ENR 11/29/45.

Tex., Premont—City, A. T. Canales, mayor, Mar. 17, addnl. sanitary sewers, from Mitchell Darby Constr. Co., P. O. Box 479, Pharr, **$56,000.** Est. $75,000. CD 3/11.

Wis., Slinger — Village, Mar. 14, sewage treatment plant from Leroy Schmidt, Richfield, **$97,168.** CD 3/2.

CONTRACTS AWARDED

O., Lakewood—City, 14532 Lake Ave., 1 mi. 48 in. segment block intercepting sewer, partly on Edgewater Dr. and partly on private right away between Nicholson Ave. and W. 117 St., to The Kalill Co., 4161 W. 150 St., Cleveland, **$281,831.** Awarded 3/21. CD 3/16/45—ENR 4/5/45.

Ore., Newberg — City, City Hall, sewage treatment plant, to P. S. Lord, 4467 S. E. Milwaukie St., Portland, **$60,500.** Bids 3/7. CD 2/17—ENR 2/24.

Wis., Hartford — City, sewage treatment plant addn., to John Thorn, 223 Union St., **$273,100.** Bids 3/15. CD 2/24—ENR 3/3.

Alta., Edmonton—Municipality, sewer from river at 106 to 104 Sts., to Borger & Sons, Ltd., 194 Osborne St., Winnipeg, Man., **$154,408.** James McDonald, city engr. CD 3/2—ENR 3/18.

BRIDGES

BIDS ASKED

April 5

Ont., Toronto—Chairman Bd. Control, subway under Crescent Rd., Clifton Rd. exten. for Municipality, Murray Stewart, city engr. CD 4/29—ENR 5/13.

April 6

✝Georgia—U. S. Eng., P. O. Box 1169, Mobile, 7, Ala., Clark Creek Bridge, Bartow Co., Serial No. Eng-01-076-49-119.

April 12

✝Calif., Oakland—U. S. Eng., 74 New Montgomery St., San Francisco, foundations, appurtenances for railroad bridge Oakland Harbor, Serial Eng-04-203-49-14.

Massachusetts—Mystic River Bridge Auth., E. A. Brest, chn., 6 Beacon St., Boston, approaches, Mystic River Bridge, Charlestown and Chelsea, Contr. X. Approx. $50,000. Charles A. Maguire & Assoc., 211 Congress St., Boston, Mass., and J. E. Greiner Co., 1201 St. Paul St., Baltimore, Md., consult engrs. CD 3/10/47—ENR 3/20/47.

LOW BIDDERS

●Maryland—State Hy. Dpt., Baltimore, Mar. 15, substructure, Sect. E and E alternates, piers 23 to 28 (inclusive), and islands, for Chesapeake Bay Bridge, Contr. C. B. B. 10-1-87, Anne Arundel and Queen Anne Counties, from Merritt, Chapman & Scott Corp., 17 Battery Pl., New York, N. Y., Raymond Concrete Pile Co., Mercantile Trust Bldg., Baltimore, and Arundel Corp., Pier 2, Pratt St., Baltimore, **$23,772,490.** CD 2/25—ENR 3/3.

N. Y., New York—President Manhattan Boro, Municipal Bldg., Zone 7, Mar. 16, pedestrian overpasses over Franklin D. Roosevelt Drive at 103, 111 and 120 Sts., from Lenart Constructors, Inc., 101 Park Ave., Zone 17, **$229,625.** CD 3/9.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork. Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

✝ Federal Government
● Project of $1,000,000 or over.
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

Pa., McKeesport — Comrs. Allegheny Co., County Office Bldg., Pittsburgh, Ramp 2, Contr. 14, Dravosburg Bridge, over Monongahela River Dravosburg to McKeesport, from Larry Constr. Co., 137 Jefferson Dr., Pittsburgh, stone **$430,625;** slag **$425,739.** Est. $500,000. CD 3/9—ENR 3/17.

CONTRACTS AWARDED

Calif., Martinez—Contra Costa Co., Hall of Records, Martinez, bridge across Dutch Slough at Jersey Island on County Rd. E-15, to E. H. Peterson & Son, 5691 Dam Rd., Richmond, **$67,733.** Bids 3/14. CD 2/23—ENR 3/3.

Miss., Gulfport — Harrison Co., Gulfport, bridge across Bayou Portage, to W. R. Fiarchild, Hattiesburg, **$128,199.** Bids 3/14, awarded 3/16. CD 2/28—ENR 3/3.

O., Cleveland—City, 601 Lakeside Ave., 30 ft. steel bridge, with concrete grid and steel supports underneath with concrete ramps on both ends from Mall to Lake front Stadium adjoining present bridge, incl. 50 ft. concrete stair to south end of Mall, to The Mark Swisher, Inc., 1600 E. 25 St., **$134,719.** Est. $105,750. CD 9/13/45—ENR 9/27/45.

STREETS AND ROADS

BIDS ASKED

April 5

Ala., Auburn—Alabama Polytechnic Institute, co Purch. Agent, 26,000 sq. yd. paving on campus. Plans deposit $10.

April 11

Pennsylvania—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg,

Dauphin Co.—grading, drainage, structures, paving 4.66 mi. Turnpike Sect. 23-A part of Philadelphia Exten. in Lower Swatara and Londonderry Twps. Plans deposit $50. R. B. Stone, c/o owner, engr. CD 1/19—ENR 2/3.

April 12

Minn., Rochester—Olmsted Co., F. L. Underleak, aud., City Hall, crushed rock wearing surf. 6.1 mi. between Salem Corners and S. A. R. P. southwest of Rochester, incl. 151,699 cu. yd. Class A and 8,658 cu. yd. Class B excav., 1 precast concrete cattle pass, 1 monolithic concrete culvert, 56.5 cu. yd. concrete, 7,995 cu. yd. crushed rock wearing course in place, SP 55-512-01 (SAR 3), Minn., Proj. S 422 (1). $50,000. G. J. Sullivan co. engr. CD 2/24/44—ENR 3/9/44.

Tex., Beaumont—City, Otho Plummer, mayor, City Hall, paving 1.34 mi. Nelson Ave. Approx. $77,833. Charles L. Davidson, Courthouse, co. engr. R. C. Black, city engr. CD 2/11—ENR 3/3.

May 2

Ala., Mobile—Mobile Co. Bd. Revenue & Rd. Comrs., Mobile, imprv. 22½ mi. county roads. J. B. Converse & Co., 106 St. Joseph St., engrs.

LOW BIDDERS

Calif., San Francisco—Pub. Utilities Comn., City Hall, grading, paving, retaining walls at Presidio Ave. Yard, Spec. 312, from Plombo Constr. Co., 1571 Turk St., San Francisco, **$169,522.**

✝Colorado—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Mar. 17, relocation State Hy. 280, Granby Reservoir, Colorado-Big Thompson Proj., Spec. 2548, from Horner, Sweitzer & Hayes, 118 S. Pecos St., Denver, **$303,912.** CD 3/2—ENR 3/10.

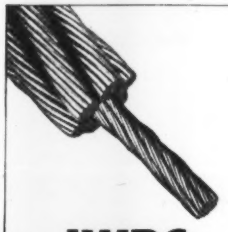
Maryland—State Hy. Dpt., Baltimore, Mar. 15, penetration macad. on macad. surf. 1.083 mi. relocation U. S. Rt. 313, and State Rt. 404, beginning approx. 2 mi. south of Denton, exten. southeasterly toward Andersontown, Contr. CO-210-1-215, Caroline Co., from Eastern Highways Corp., Belle Grove Rd., Baltimore, **$168,293*****grading, draining 1.893 mi. Sect. Md. Rt. 589, beginning approx. 2.7 mi. southeast of U. S. Rt. 113, exten. southeasterly toward U. S. Rt. 213 at Grays Corner, WO-285-1-150, Worcester Co., from Hannaman-Burroughs Co., Salisbury, **$110,938.** CD 3/2—ENR 3/10.

Massachusetts — Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mar. 15, resurf. Concord Turnpike, Rt. 2, F-242 (5), Belmont and Arlington, from Auburndale Constr. Co., 147 Hancock St., Auburndale, **$289,523.** CD 3/2—ENR 3/10.

●Michigan—State Hy. Dpt., Lansing, Mar. 8, oil aggregate surf. 7.9 mi., M-20 from west county line, east, Isabella Co. and 2.9 mi. M-20 from Remus east to east county line, Mecosta Co., from General Paving Constr. Co., 235 Union Ave. S. E., Grand Rapids, **$140,067** ***b. conc. 7.496 mi. U. S. 12 from Parma east to 2 mi. west Jackson city limits, 4.584 mi. on M-50 from Park Lake Rd., northwest to Jackson, and 5.174 mi. on M-60 from east city limits, Spring Arbor to Concord, Jackson

(Continued on page 80)

He'll help you avoid crushed rope



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An independent wire rope core gives added support to the strands which lie around it.

In many types of wire-rope service, heavy pressures on the rope itself are unavoidable. The Bethlehem man knows, for instance, that even with the best of spooling, a fiber-cored wire rope is sometimes crushed on the drum. Often, too, loads are so heavy that great pressures exist as the rope passes around sheaves. These pressures frequently have a distorting effect on the wire structure of the rope.

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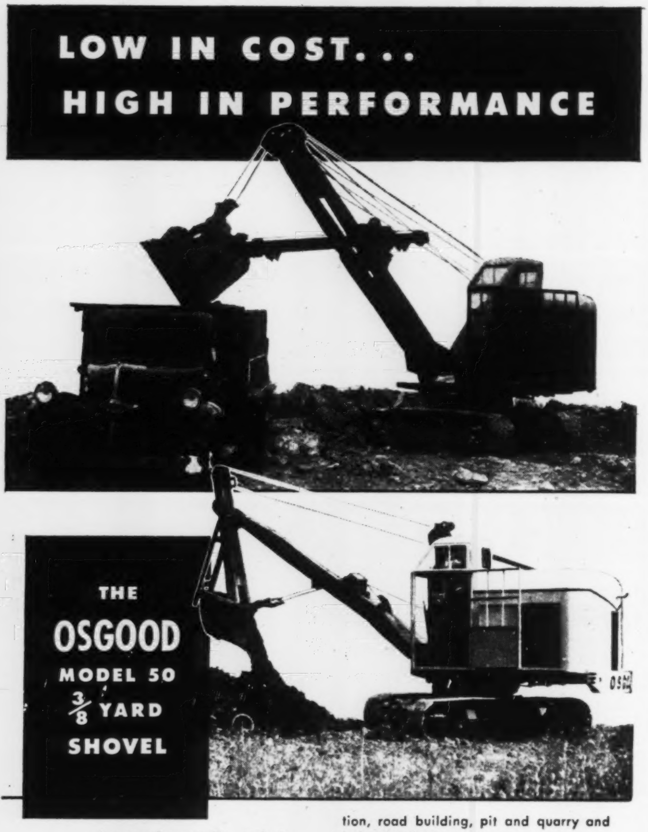
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BOSTON CINCINNATI NEW ORLEANS

(Continued from page 78)

Co. and b. conc. 0.993 mi. M-66 Barry Co., 0.299 mi. U. S. 27 and M-78 in Charlotte, 3.946 mi. M-78 and M-50 in Charlotte, oil aggregate 4.158 mi. M-50 Eaton Co., from Globe Constr. Co., Kalamazoo, **$308,524** and **$193,357** respectively***c. conc. 4.426 mi. M-47 south from St. Charles, Saginaw Co., from Bridgeport Core Sand Co., 125 Davenport St., Saginaw, **$327,094*****b. conc. 4.544 mi. M-99, 0.182 mi. M-34, 0.558 mi. M-99, Hillsdale Co., from Ann Arbor Constr. Co., Ann Arbor, **$169,254*****c. conc. 4 mi. U. S. 12, from U. S. 24 west to Merriman Rd., 1.23 mi. M-153 from U. S. 24 east to Fordson St., Wayne Co., from Cadillac Asphalt Paving Co., 12490 Evergreen Rd., Detroit, **$182,743**. CD 2/24—ENR 3/3.

O., Toledo—City, City Hall, paving portions 109, 110, 113, 114, 291, 292, 293, and 295 Sts., Point Place, from Dominic Giovannucci, 926 Oakwood St., **$87,981**; from C. A. Schoen, Inc., 4033 Fitch St., asphalt **$88,004**. CD 10/14—ENR 10/28.

Ore., Portland—Multnomah Co., Courthouse, 43 blocks paving, grading, from Porter W. Yett, 6500 N. E. Ainsworth St., **$61,683**. George W. Buck, co. engr. CD 12/1—ENR 1/6.

♦Alaska—Pub. Roads Admin., Juneau, cancelled bids to have been opened Mar. 28, surfacing 2.6 mi. Tongass Hy., Alaska Forest Hy. Proj. 1-CD, D7. CD 3/8—ENR 3/10.

CONTRACTS AWARDED

Ia., Chariton—City, City Hall, paving, to Gillotti Constr. Co., Des Moines, **$56,048**. Bids 3/7.

Tex., Houston—Harris Co., Hugh A. May, comr. Precinct 2, Courthouse, reconstructing, drainage, culverts, asph. resurf. 4 mi. Bohemian Rd. and 2.95 mi. Atascocito Rd. force account. **$102,000.** Hugo Zapp, co. engr. CD 2/28—ENR 3/17.

Tex., Houston—Southern Village, c/o C. D. Knight & Assoc., 503 W. Alabama St., asph. paving and c. i. waterlines for subdivision, own forces. Approx. **$80,000.**

Tex., Victoria — Victoria Co. c/o judge, Courthouse, grading, drainage, asph. surf. from vicinity of Victoria southeast toward Calhoun Co. line, force account. **$125,000.** CD 12/17/47—ENR 1/8/48.

Washington—State Hy. Dpt., Olympia, to Erickson Paving Co., Inc., 1550 N. 34 St., Seattle, Zone 3, grading, draining 2.364 mi. Primary State Hy. 16, Pateros to Black Canyon, Sects. 1, 2 and 3, E. R. P. Nos. ER-4 (4) Unit 1 and and ER-F-4 (1) Unit 1, Okanogan Co., **$105,899**; grading, draining 1.391 mi. Primary State Hy. 16, Methow to Squaw Creek vicinity, E. R. P. No. ER-F-4 (2) Unit 1, Okanogan Co. **$101,480**; grading, draining 1.388 mi. Primary State Hy. 16, Methow south, E. R. P. No. ER-4 (5), Unit 1, Okanogan Co. **$170,282*****to Smith Bros., Vancouver, stockpiling 77,800 tons crushed stone surf., ballast and mineral aggregate, Prindle to North Bonneville, Skamania Co. **$99,944***** to J. D. Shotwell Co., Puget Sound Bank Bldg., Tacoma, **$149,333*****to Dawson Constr. Co., Bellingham, grading, draining, surf. 1.47 mi. Secondary State Hy. 1-Y, Stillaguamish River bridge approaches, F. A. S. No. S-0356 (1), Island and Snohomish Counties, **$194,077***** to Chris Yonlick & Co., 10233 3 Ave. S. Seattle, **$54,597.** Grand total $875,621. Bids 3/18. CD 3/3 and 3/9—ENR 3/10.

EARTHWORK, WATERWAYS

BIDS ASKED

After March 25

♦Idaho—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., 2,100 lin. ft. irrigation canal on left bank Snake River, Mattsen-Craig Canal Headworks, beginning at point approx. 4 mi. east of Ririe, Jefferson Co., Serial No. Eng. 45-164-49-29.

April 6

N. B., Caraquet—J. M. Somerville, secy., Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., harbour imprvs., Approx. $160,000. Plans deposit $25., R. Blais, c/o owner, engr.

April 7

♦Montana — Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Louisville, three 13 ft. 6 in. welded plate steel penstocks, one 13 ft. welded plant steel pumping intake, 4 welded plate steel outlet conduit liners, etc., Cannon Ferry Dam, Canyon Ferry Unit, Missouri Basin Proj., Spec. 2577. Extended date. CD 2/21—ENR 2/24.

April 8

♦Arkansas—U. S. Eng., 300 W. Broadway, Little Rock, clearing Bull Shoals Dam Area. Inv. No. Eng-03-050-49-57.

On or About April 12

♦Alabama—U. S. Eng., P. O. Box 1169, Mobile, rehabilitation maritime facilities for reserve fleet storage on Tensaw River, near Hurricane, Serial No. Eng-01-076-49-116.

April 12

♦Louisiana—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, 495,000 cu. yd. semi-compacted earthwork, etc. Red River below Denison Dam Levees, Serial No. Eng. 16-047-49-247.

April 14

♦Texas—U. S. Eng., 606 Santa Fe Bldg., Galveston, dredging Trinity River from Texas channel to Liberty, from Houston Ship chan-

(Continued on page 82)

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DEPENDABLE RUGGEDNESS
Cured Belt
Continuous Uniform Cure
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This is the exclusive BWH ROTOCURE Process of continuous vulcanization. It does away with the 30-foot overlaps occurring in the old-fashioned flat press curing, eliminates the possibility of operational weakness caused by such overcuring.

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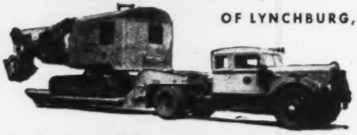

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(Continued from page 80)

nel to north of Double Bayou, Galveston and Chambers Counties. Approx. $140,000.

April 19

†**North Dakota**—U. S. Eng., Fort Lincoln, Box 300, Bismarck, levee, appurtenances, Mandan, Serial No. Eng-32-015-49-79. CD 3/15—ENR 3/17.

†**Washington** — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., one sludge pump, two oil and two water pumps for Grand Coulee Pumping Plant, Columbia Basin Proj., Spec. 2616.

May 3

†**Oregon** — Bureau Reclamation, Dpt. Interior, Bend, Ochoco Dam repairs, Deschutes Proj., Spec. 2614. Plans deposit 50c.

LOW BIDDERS

†**Arizona-Nevada-California**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., **Mar.**, 17, actuator-type governors for 115,000 hp. hydraulic turbines for Boulder Canyon Proj., Spec. 2571, from Woodward Governor Co., Rockford, Ill., **$94,880.** CD 2/25—ENR 3/10.

†**Arizona-Nevada** — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver Colo., Mar. 15, 15,000kva. Blythe substation, approx. 12 mi. north of Blythe, Calif., Davis Dam Proj., Spec. 2538, from Del Monte Electric Co., 8275 San Leandro St., Oakland, Calif., **$209,563.** CD 1/24—ENR 2/3.

†**Montana**—Bureau Reclamation, Dpt. Interior, Billings, Mar. 18, canal and laterals, Savage Pumping Plant, Missouri River Basin Proj., Spec. R6-26 (Region 6), from Long Constr. Co., Billings, **$255,964.** CD 3/8—ENR 3/10.

†**Oklahoma** — U. S. Eng., Box 61, Tulsa, Mar. 15, clearing reservoir area in Zones A, B, and C, constructing Brush rows for fish shelters, at Hulah Dam, from O. J. Lewis, Ozark, Ark., **$198,000.** Est. $400,000. CD 2/24—ENR 3/3.

Tex., Beaumont — Beaumont Navigation Dist. 6, Courthouse, Mar. 15, Sect. 1, flood gates along new channel of Taylor's Bayou, from Trotti & Thomson, Inc., 2940 Crockett St., **$79,890.** CD 2/8—ENR 2/10.

†**Washington** — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Mar. 15, 72,000 bbl. type V, low-alkali portland cement for constructing Soap Lake siphon, from Permanente Cement Co., 1924 Broadway, Oakland, Calif., **$215,972.** CD 3/4—ENR 3/10.

CONTRACTS AWARDED

†**Oregon**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Adams Pumping plant with inlet channel, discharge pipes and outlet structures, Klamath Proj. Main Div., Spec. R2-49 (Region 2), to George R. Stacy, Tulelake, Calif., **$47,902.** Awarded 3/14.

AIRPORTS AND AIRBASES

BIDS ASKED

April 6

†**R. I., Hillsgrove** — HANGAR — U. S. Property & Disbursing Officer for Rhode Island, 51 Stenton Ave., Providence, Zone 6, hangar for Liaison type planes, Theodore F. Green Airport, Serial No. W-37-019-N.G.-18. CD 3/10—ENR 3/17.

April 8

Minn., St. Paul — AIRPORT IMPRVS. — Minneapolis-St. Paul Metropolitan Airports Comn., R. Aldrich, exec. dir., 2429 University Ave., clearing, grading, stabilization, fencing, seeding, Flying Cloud Airport, near Shakopee. $90,000. Plans deposit $10. Toltz, King & Day, 1509 Pioneer Bldg., engrs.

April 12

Tex., Amarillo — AIRPORT — City, N. V. Moss, mgr., municipal airport imprvs., incl. runway and taxiway extens., storm sewer, lighting sys. Approx. $75,000. Plans deposit $15. CD 10/2/47—ENR 10/16/47.

LOW BIDDERS

S. D., Aberdeen — AIRPORT BLDG. — City, Mar. 9, administration bldg. at municipal airport, from Norfling Constr. Co., Aberdeen, **$119,487.** CL 2/24—ENR 3/3.

CONTRACTS AWARDED

Wash., Seattle — HANGAR — United Air Lines, 80 E. 42 St., New York, N. Y., structural steel for framework of first half of hangar and shop bldg. at Seattle-Tacoma Airport, to Pacific Car & Foundry Co., Renton, **$51,786.** Young & Richardson, Central Bldg., Zone 4, archts. CD 10/2/46—ENR 10/17/46.

PUBLIC BUILDINGS

BIDS ASKED

April 5

†**Mass., Lynn**—U. S. Eng., Bldg. 21, U. S. Naval Drydock, South Boston, 1 story, 40x122 ft. and 35x40 ft. masonry motor vehicle storage bldg., Serial No. MNG. 19-093-49-2. Extended date. CD 2/21—ENR 3/10.

April 6

Mass., Dedham—Town of Dedham Housing Auth., Memorial Hall, 381 Washington St., 80 unit, 2 story houses, Proj. 200-1. Oakland

Rd., near Fairview Cemetery. **$823,245.** **Extended date.** **Edmund I. Leeds & Assoc., Inc.,** 135 **Brighton Ave.,** Allston, **archt.** CD 3/8—ENR 3/17.

April 8

Mass., Billerica—Town, Supt. Schools, school addn., **Pinehurst Dist., $450,000.** P. J. Gilbert, Hunt, **Forbes & Mitchell,** 53 **Central St.,** Lowell, **archts.** CD 2/14—ENR 2/24, under LB.

Mass., Melrose—G. S. Weeks, city engr., P. Wks. **Office, City Hall,** brick, steel, concrete school, **Damon Ave.** $350,000. **Plans deposit** $100. **W. H. Jones & Co.,** 115 W. Emerson St., **archts.** CD 6/6/46—ENR 7/1/46.

N. D., Fargo—State Bd. Higher **Educ.,** Bismarck, library at State Agricultural College. Approx. **$400,000.** W. F. Kurke & Assoc., Fargo, **engrs. and archts.** CD 9/27—ENR 10/28.

O., Dayton—State, G. B. **Sowers, dir.** Dpt. P. **Wks., Ohio Dpt. Bldg.,** Columbus, propagation **house, Dayton State** Hospital. H. G. Allen, **Div. State Engr.** and Architect, c/o owner, **archt.** CD 10/23/45—ENR 11/15/45.

April 12

Conn., Storrs—State, Raymond S. Thatcher, comptroller, **State** Capitol, Hartford, 2 **dormitories, Elizabeth** Hicks and Grange Hall **Dormitories,** University of Connecticut. **$400,000.**

Mass., North Andover—Town, School Comn. Office, Town Office Bldg., **school, $300,000.** Plans **deposit $25.** Adden, Parker, Clinch & Crimp, 177 **State St.,** Boston, **archts.** CD 8/30—ENR 9/16.

Minn., St. Louis Park—Bd. Educ., C. D. **Sparks, clk., 1 and 2 story, 198x325 ft.,** concrete, **steel L-shaped** school **bldg. $650,000.** Plans deposit **$20. Haxby,** Bissell & **Belair,** 1111 **Nicollet Ave., Minneapolis, archts.** CD 7/30—ENR 8/19.

N. Y., Rockaway—New York City Housing **Auth., 63** Park Row, **New York, Zone 7, general constr., heating** and **ventilating, electrical work** plumbing **and erecting elevators for Arverne** Houses, Proj. No. NYC-18 **in area bounded by Rockaway** Beach **and Arverne** Blvds., **Beach 56 St.,** Beach Channel **Dr. and Beach 54 St.,** Queen Boro. Plans deposit **$75.** Plans deposit **$25** for elevators. CD 1/5/45—ENR 1/25/45.

Ont., Toronto—H. M. Brownlee, bus. admin., c/o North York Twp. School **Area 1, Armour Heights Pub.** School, **Wilson** Ave., 2 **story,** bsmnt., **1 story side** wings, steel **brick school.** Approx. **$250,000.** Allward & Gouinlock, 57 Bloor St. W., **Toronto,** archts. CD 12/20.

April 19

●N. Y., Great Neck—Bd. Educ., Union **Free** School Dist. 7, **school. $2,225,000.** Starrett **&** Van Vleck, 267 **Fifth Ave., New** York, **Zone** 16, archts.

April 22

●O., Cincinnati — Hamilton Co., **Courthouse,** county home, **1 to 3 story,** bsmnt., **irregular** shape, 60x90x234 ft. main bldg., 58x144 **ft.** power plant **and laundry, offices,** wards, **bedrooms, first** aid, library, **dining rooms, lockers, laboratory, tailor shops,** lounges, **etc., power** plant **bldg.,** coal **bunker,** laundry, **mending** room, **air-conditioning,** etc. Approx. **$3,500,000.** Samuel **Hannaford & Sons,** 1024 Dixie Terminal Bldg., and **Frederick Garber,** Union **Central Bldg., archts.** Wm. Bodenstein & W. F. **Schuster,** 2nd Natl. Bank Bldg., **engrs.** Wm. Pistler 4 W. 7 St., assoc. engrs. **CD** 8/22/45—ENR 9/6/45.

April 26

●†N. M., Albuquerque—U. S. Eng., P. O. Box 1538, **1 and 2 story,** 320x360 ft., **steel masonry, industrial type bldg.,** mon. con. **ext.** Bldg. **A-17, Sandia Base,** Serial No. 291-49-90. **$1,000,000.** Plans **deposit $45.** CD 2/28—ENR 3/10.

About May 1

La., Bogalusa — Washington-St. Tammany Charity **Hospital,** hospital, **$600,000.** Smith & Padgett, **Monroe, archts.** CD 3/21—ENR 4/14.

LOW BIDDERS

Mass., Boston — City of Boston Housing **Auth., 10 Post** Office **Sq.,** Boston, Mar. 18, **14 veterans houses,** Favre St., Mattapan, **from** Calumet **Constr.** Co., 50 **Calumet St., Roxbury, $273,500.** CD 3/16—ENR 3/24, under LB.

†Mass., Framingham—U. S. Eng., Bldg. 21, U. S. **Naval Drydock, South** Boston, Mar. 18, **motor vehicle storage** bldg., **Massachusetts National Guard, Serial** No. **MNG** 19-093-49-01, from **Frankini Constr.** Co., Inc., 26 **Mystic** Ave., **Medford, $93,069.** Est. over **$68,000.** CD **3/4.** ENR **3/10.**

Mass., Newton—**City, P. Bldgs.** Comn., **City Hall, Mar. 15, Williams School, Auburndale and Grove Sts., from Rich Bros.** Constr. Co., **410 Park Sq. Bldg.,** Boston, **$461,461. Shepard & Stearns,** 65 **Franklin St., Boston, archts.** CD 3/2—ENR 3/10.

O., Columbus—Ohio **State** University, **Columbus,** Mar. 17, agricultural laboratory, **from** Haig M. Boyajohn & Assoc., 990 W. 3 **Ave., $528,700.** CD 2/18—ENR 2/24.

Pa., Embreeville—Dpt. Property & Supplies, **18 and Herr Sts., Harrisburg,** Mar. 16, **general contract boiler plant and warehouse** at **Embreeville State Hospital,** from Perry J. **Goldman Constr. Co., Lewis** Tower Bldg., **225 S. 15 St., Phila.** Zone 2, **$123,900 and $105,100 respectively*****mechanical **and piping for boiler plant,** from Corbit's, Inc., **225 S. Front St.,** Reading, **$158,738*****general **contract laundry and warehouse, from McCloskey Homes,** Inc., **1620** W. **Thompson** St., **Phila., Zone 21, $219,000*****general **contract laundry,** from H. T. **Horst** Constr. Co. Inc., **110 S. 10** St., **Reading, $127,186.** CD 2/7—ENR 2/17.

Pa., Scotland—Dpt. Property & Supplies, **18 and Herr Sts., Harrisburg,** Mar. 16, **general** contract **Cottages 15** to 18 (inclusive) **and Cottage Administration** Bldg. 19 **at** Pennsylvania **Soldiers Orphan School,** from **H. B.** Alexander & Son, 315 **Vaughn** St., **Harrisburg, $357,797.** CD 2/17—ENR 3/10.

Tex., Beaumont—City, Mar. 5, police central **station,** from G. Sargl, P. O. Box 1007, **$315,583. Est.** $250,000. CD 2/23.

Tex., Sundown — Sundown Independent **School Dist., Sundown,** Mar. 16, masonry high **school, stadium,** and fieldhouse, from Gilstrap Constr. Co., P. O. Box 283, Lubbock, **$295,666.** CD 3/1—ENR 3/3.

CONTRACTS AWARDED

●Calif., Visalia—Visalia Union High School Dist., Visalia, **steel,** frame, concrete high **school,** to Ted Merrill, 911 E. Redondo Blvd., Inglewood, **$1,478,000.** Bids 3/1, awarded 3/9. CD 3/10—ENR 3/17, under LB.

Conn., Manchester—Town, Bd. Educ., Manchester, 2 **story,** bsmnt., **brick, steel** school, Princeton St., to Bartlett-Brainard Co., 103 Woodbine St., Hartford, **$544,878.** Bids 3/8. CD 3/17—ENR 3/24.

Ga., Richland — Stewart-Webster Hospital, c/o contractor, hospital, to A. C. Samford, Inc., Albany, **$273,000.** CD 8/27—ENR 9/2.

●Ia., Iowa City—State Bd. **Educ., Des Moines,** general contract library at **University** of Iowa, to Weitz Co., Inc., 406 **Fleming Bldg.,** Des Moines, **$1,108,130.** Bids **2/24.** CD **3/11**—ENR 3/17, under LB.

Kan., Hutchinson—Bd. Educ., Hutchinson, general contract 2 **schools,** to L. R. Foy Constr. Co., 417 N. **Main** St., **$520,759.** Bids 3/3. CD 2/23.

Kan., Lawrence—State Bd. **Regents, Topeka,** general contract, **womens** resident **hall addn.,** University **of Kansas,** to **Basil Green,** Lawrence, **$551,420.** Bids 2/17. CD 3/1—ENR 3/3, under LB.

●Kan., Manhattan—State Bd. Regents, Topeka, general contract, field house **and mens** gymnasium bldg., **Kansas State** College, to Bennett Constr. Co., 1805 **Harrison St.,** Topeka, **$1,540,492.** Bids 11/18. CD 11/29—ENR 12/9, under LB.

O., Bexley (Br. Columbus)—Bexley Bd. Educ., Columbus, Bexley School, to Altman-Coady Co., 1251 Fairwood St., **Columbus** **$146,393.** Bids 3/10, awarded 3/17. CD 2/18—ENR 2/24.

O., Hamilton—Bd. Educ., H. L. Howard, bus. mgr., 322 Dayton St., **general contract,** 1 **and** 2 **story,** part **bsmnt., 67x83 ft. and** 58x72 ft., **73x198** ft., brick **Fillmore School** addn., alterations, to **Carl J.** Condradt **& Sons,** Inc., 591 **Main St., $451,000.** CD **2/6/48—ENR 2/19/48.**

●Wis., Beloit—Bd. Educ., Beloit, 1, 2 **and 3** story U-shaped, 319 x 541 ft. **Senior** High School, to Sherry-Richards Co., 201 N. **Wells** St., Chicago, Ill., **$2,364,830.** Bids 1/4. CD 1/11—ENR 1/13, under LB.

COMMERCIAL BUILDINGS

BIDS ASKED

April 4

N. Y., Poughkeepsie—Vassar Bros. Hospital, Reade Pl., nurses home. **Louis** E. **Jallade,** 597 **Fifth** Ave., **New** York, archt. CD 2/27/47—ENR 3/13/47.

April 8

Mass., Lowell — Lowell Textile Institute **Alumnae Assn., Moody St., Lowell,** 2½ story, **bsmnt., 21x40** ft. **and 45x110 ft.** library **$275,000.** **Krokyn & Browne, 184 Boylston St.,** Boston, **archts.** Albert Goldberg, 739 Boylston **St.,** Boston, **struc. engr.** CD 12/13—ENR 12/23.

April 12

Ill., LaGrange—Nazareth Academy, Sisters of St. Joseph, **LaGrange,** 2 **and 3 story** brick, concrete academy addns. C. H. **Ording,** 228 N. **LaSalle St.,** Chicago, archt. **CD 2/18—ENR** 3/10.

Mass., Boston — **Leonig Merchants Assn.,** Inc., c/o Frank Goon, 10 A. **Tyler** St., 4 **story,** 60x150 **ft.** brick **headquarters and community** center, **Hudson, Kneeland** and Albany **Sts.** $500,000. Edward Chin-Park, 115 **Chauncey** St., archt.

April 13

⊙Tex., Houston — P. C. Stewart, 5308 Carrolton St., **400 dwellings,** between **Askew and Golfcrest, along Gulf** Freeway, **Freeway Addn.** Approx. **$3,500,000.** Still, **Wildman & Crockett,** 3509 Almeda Rd., **engrs.** CD 2/21—ENR 3/10.

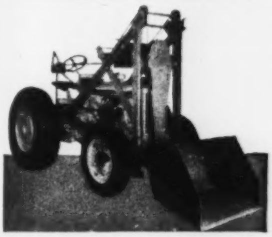
Wis., Green Bay — St. **Joseph** of Carondelet, Green Bay, 2 **story,** bsmnt., **79x100 ft.,** steel, **brick Academy Addn.,** boiler **and workshop rooms.** L. A. Geniesse, 226 N. **Washington St.,** archt.

April 14

●Tex., San Antonio—Texas National Hotel Assn., c/o W. L. Moody, Jr., 2028 Market St., **Galveston, 125** room, 4 **story, stone, steel** Menger **Hotel addn., air-conditioning. $1,000,000.** **Atlee B. & Robert M. Ayers, Transit** Tower, **archts.** CD 11/29—ENR 12/9.

April 29

Tex., Austin—Texas National **Hotel Assn.,** c/o **W. L. Moody, Jr., 2028 Market St., Galveston, 3 story,** masonry Stephen F. Austin Hotel addn. **$'50,000.** Atlee B. & Robert **M**



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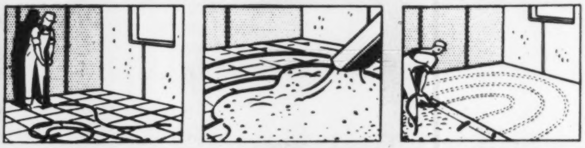

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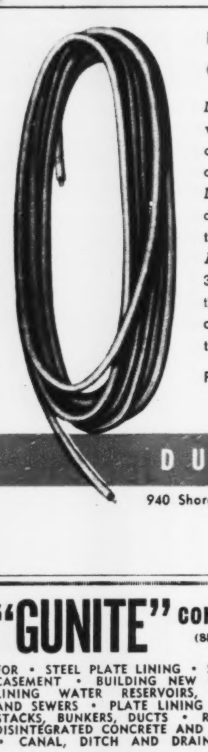

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Ayres, Transit Tower, San Antonio, archts. CD 2/10—ENR 3/17.

●**Tex., Houston**—Melvin A. Silverman, 6110 Almeda St., 21 story, bsmnt., commercial bldg. **$4,000,000.** Lloyd & Morgan, 4605 Montrose Blvd., archts. CD 3/11.

SOON LETS CONTRACT

Conn., Coventry — Southern New England Telephone Co., 227 Church St., New Haven, soon lets contract 1 and 2 story brick, steel telephone exchange. Harold H. Davis, 29 Whitney Ave., New Haven, archt. CD 3/1—ENR 3/10.

Fla., Clearwater — J. C. Penney Co., c/o Roy W. Wakeling, archt. Coachman Bldg., soon lets contract department store. Extended date. CD 3/1—ENR 3/10.

Ill., Chicago — Pace Memorial Church, c/o A. F. Heine & Assoc., 7919 S. Ashland St., soon lets contract, 2 story, brick church. **$300,000.**

Ore., Prineville — Pioneer Memorial Hospital, Prineville, soon lets contract 35 bed, concrete block and brick hospital. **$384,000.** Roald, Schmeer & Harrington, Spalding Bldg., Portland, archts. CD 12/9—ENR 12/17.

Okla., Oklahoma City—Noftsger & Lawcence, archts., 2829½ N. W. 23 St., soon lets contract nurses home for Mercy Hospital, 501 W. 12 St. Approx. **$350,000.** Plans deposit $50. CD 11/15—ENR 12/16.

Pa., Sharon—Sharon Development, . Assn., Sharon, soon lets contract 3½ story, bsmnt., brick, stone Colonial type hotel, Kimberly Rd. **$500,000.** Charles F. Owsley, 211 Champion Ave., Youngstown, O., archt. CD 8/23—ENR 8/26

LOW BIDDERS

Calif., San Francisco—Roman Catholic Archbishop of San Francisco, 1100 Franklin St., Mar. 16, rein.-con., structural steel All Hollows Parish Parochial School, from Carrico & Gauthier, 365 Ocean Ave., **$353,210.** CD 2/25 ENR 3/3.

Pa., Pittsburgh—Carnegie Institute of Technology, Schenley Park, Mar. 7; 3, 4 and 5 story, 54x90 ft. and 40x57 ft., brick, steel engineering hall addn., alterations, from Crump, Inc., 4031 Bigelow Blvd., **$912,000.** CD 2/18—ENR 2/24.

Tenn., Memphis — Methodist Hospital, c/o contractor, Mar. 15, hospital addn., from Sam P. Maury Constr. Co., 554 Adams Ave., **$612,222.** CD 2/17—ENR 2/24.

CONTRACTS AWARDED

Ark., North Little Rock — First Methodist Church, North Little Rock, church. Owner builds. **$270,000.** Bruggeman, Swaim & Allen, Malco Bldg., archts.

Calif., Los Altos — J. Henry Delaney, 542 El Camino Real, San Mateo thirty 3-bedroom frame residences off San Antonio Rd. Owner builds, **$300,000.** Robert C. Younger, 2666 El Camino Real, Redwood City, archt.

●**Calif., Los Angeles**—Sprague Apartments, Inc., 990 W. Pico Blvd., 155 apartments, Chandler and Sylmar St., to Allied Contrators, Inc., 970 W. Pico Blvd., Los Angeles. Approx. **$1,500,000.** Adrian Wilson & Alden Becker, 815 W. 5 St., archts.

Conn., West Hartford — Howard L. Menzel, et al, West District Rd., Farmington, thirty 6 room frame houses, Spring Lake. Owner builds. **$280,000.** CD 3/16.

Fla., North Miami — B-10, Inc., c/o contractor, 80 homes, to Gaines Constr. Co., 3211 N.W. 27 Ave., Miami, Approx. **$500,000.**

Ga., Atlanta — Trust Company of Georgia c/o Abreu & Robeson, archts., 22 Marietta St. Bldg., bank, to Barge-Thompson Co., 136 Ellis St. N.E., **$293,957.** Bids 2/25, awarded 3/18. CD 1/28—ENR 2/3.

Ga., West Point — West Point Mfg. Co., West Point, office, to Batson-Cook Co., West Point, Approx. **$250,000.** Bids 3/15. CD 2/31—ENR 2/24.

Ill., Chicago—7217 S. Phillips Ave. Corp., 111 W. Monroe St., 24 apartments, 7217 Phillips Ave., to Henning Johnson & Sons, 7649 S. State St., **$250,000.** H. A. Stahl, 111 W. Monroe St., archt.

●**Ill., Highland**—St. Joseph's Hospital, Sister Theodosia, Superior, Highland, general contract, 4 story, bsmnt., 146x227 ft., T-shaped, rein.-con. brick hospital addn., to W. H. Franklin Co., P. O. Box 242, Springfield, Approx. **$1,000,000.** Henry R. Helmle, First National Bank Bldg., Springfield, archt.

●**Ill., Wheaton**—Illinois Bell Telephone Co., 212 W. Washington St., 2 story, bsmnt., brick, steel telephone exchange (dial), to Heidel & Beck, 6235 S. Michigan St., Chicago, **$1,860,000.** Awarded 3/1. Shaw, Metz & Dolio, 208 S. LaSalle St., archts.

Kan., Kansas City—Indian Hills Country Club, Ward Parkway and Wornall St., club house addn., to James C. Garland, 6847 Cherry St., **$250,000.** CD 12/1—ENR 12/30, under Unclassified.

Ky., Louisville — Martin L. Adams & Sons, Commonwealth Bldg., 132 apartment units, Owner builds, approx. **$250,000.**

N. C., Wilmington—Moore-Fonvielle Realty Co., 201 Princess St., several residential developments. Owner builds. Approx. **$250,000.**

O., Cincinnati — Karst & Hughes, 5826 Hamilton Ave., twenty-five 1½ story, brick residences, separate contracts. Approx. **$300,000.** Wm. H. Byrnes, Jr., 1542 Madison Rd., archt.

(Continued on page 86)

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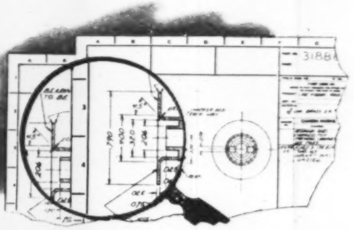

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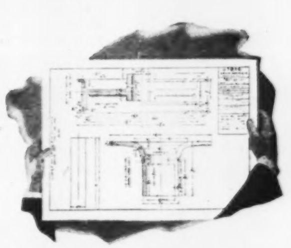

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(Continued from page 84)

●**O., Cincinnati** — Prudential Insurance Co., 763 Broad St., Newark, N. J., 32 two story, brick garden type apartments, to J. & E. Warm Co., 2335 Florence Ave. **$6,500,000.** Harry Price, 6200 Reading Rd., archt. W. C. Pislter, 4 W. 7 St., engr.

O., Columbus—State Automobile Mutual Insurance, 518 E. Broad St., 3 floor addn., adding 30,000 sq. ft. cut stone exterior, air-conditioning, heating and electrical sys., 2 automatic elevators, to The Hunkin-Conkey Constr. Co., 1740 E. 12 St., Cleveland, Zone 14, **$700,000.** Awarded 3/15. Charles W. Cloud, 630 E. Broad St., archt.

Pa., Pittsburgh—Carnegie Institute of Technology, Schenley Park, boiler plant alterations, to Crump Inc., 4031 Bigelow Blvd., Approx. **$250,000.** Peter F. Loftus, Oliver Bldg., engr.

R. I., Providence — Charles J. Riley, 122 Bridgham St., 3 story, bsmnt, apartment, E. Manning St. Owner builds. Approx. **$275,000.** CD 1/19—ENR 2/3.

Tex., Corpus Christi—W. B. Roberts, Inc., 4247 S. Port St., 103 dwellings. Owner builds. Approx. **$600,000.** CD 9/22—ENR 10/28.

Tex., Houston — Berkshire Addn., c/o L. Sacks, Scanlan Bldg., 44 residences, Berkshire Addn., east of 6 St. and west of Post Oak Rd., day labor. **$265,000.** CD 3/16.

Tex., Houston — Norfork Constr. Co., 2240 Norfork St., apartments. Owner builds. Approx. **$250,000.** CD 3/16.

Tex., Houston—The Texas Co., 720 San Jacinto St., masonry office addn., to Linbeck Constr. Co., 1352 Peden St., Approx. **$250,000.** Reginald F. Taylor, Bankers Mortgage Bldg., mechancial engr. CD 2/2—ENR 2/17.

Tex., Port Neches — J. M. Morgan, Port Neches, addnl. housing. Owner builds. **$250,000.** CD 3/16.

Tex., Sherman — Don Housing, Inc., c/o D. Elliott & Hub Hill, Thomas and Gribble Sts., housing. Owner builds. Approx. **$300,000.** CD 3/16.

Alta., Edmonton — Engineered Buildings Ltd., Edmonton, 50 dwellings. Owner builds.

●**Ont., Eastview (near Ottawa)** — M. Vachon, Britannia Bay and Eastview, 40 stucco, brick apartments, concrete fdns., on 10 acre site between Montreal Rd. and McArthur St., own forces. Approx **$2,700,000.** CD 6/6/46—ENR 6/27/46.

Que., Montreal—L. Rudberg, 20 Willowdale Ave., 4 story, bsmnt., rein.-con., brick apartment. Owner builds. Approx. **$350,000.** C. Grenier, 170 Geneva Crescent, Mount Royal, archt.

Que., St. Jerome—Alfred Lapointe, St. Jerome, 4 story, bsmnt., concrete, steel, brick hotel, to Rochon & Parent Co. Ltd., 5000 13 Ave., Montreal, Approx. **$250,000.** Crevier & Belanger, 5276 Notre Dame de Grace Ave., Montreal, archts. CD 1/11—ENR 1/13.

INDUSTRIAL BUILDINGS

BIDS ASKED

Conn., Ansonia—FACTORY—Ansonia Mfg. Co., Ansonia (selected list of bidders) 1 story, brick, steel factory addn. Approx. $68,000

Ill., Chicago — WAREHOUSE — Grocerland Co-operative, Inc., 185 S. Water Market, brick, steel warehouse, $700,000. Peter E. Camburas, 105 W. Madison St., archt.

Ill., Chicago—PLANT—Walgreen Co., 744 Bowen Ave., brick, rein.-con. plant. Approx. $500,000. L. F. Coleman, 6240 S. Kimbark Ave., archt.

R. I., Pawtucket—PLANT—Moore Fabric Co., 45 Washington St., 1 story, brick weave plant addn., Washington St., $68,000. Herbert R. Hunt, 1080 Narragansett Bldg., Providence, archt.

SOON LETS CONTRACT

Calif., San Francisco—WAREHOUSE, etc.—Pacific Container Co., 1455 Vernont St., San Francisco, soon lets contract 1 story, 134x180 ft., concrete and floor warehouse and office, $75,000. August E. Waegemann & Assoc., 2833 Webster St., archts.

Kan., Garden City—WAREHOUSE, etc.—Merchants Biscuit Co., c/o McCrackin & Hiett, archts., 308 W. 20 St., soon lets contract warehouse and office.

La., New Orleans—PLANT—Jackson Brewing Co., c/o Philip P. Cazale, archt., 8 Marlborough Gate, soon lets contract plant addns., alterations.

S. C., Kollocks—PLANT—J. P. Stevens Co., Inc., c/o J. E. Sirrine Co., archt., Greenville, soon lets contract finishing plant. Approx. $100,000. CD 1/7/48—ENR 1/15/48.

S. C., Laurens—BOTTLING PLANT—Laurens Coca Cola Bottling Co., Laurens, soon lets contract bottling plant. Lafaye, Lafaye & Fair, 1226 Sumter St., Columbia, archts.

●**Tex., Houston**—PLANT, etc.—National Steel Co., 1901 Franklin St., soon lets contract 14 plant bldgs., steel frame, corr. metal siding, concrete slab fdns., air-conditioning, $750,000; 450x462 ft., brick, stone warehouse, concrete slab fdn. and frame, $500,000; 36x163 ft., brick, stone, concrete office, $250,000. C. J. Klein, 1303 Austin St. Eng. dpt. of Weirton Steel Co., Weirton, W. Va., engrs. CD 1/4—ENR 1/13.

Wis., Green Bay—COLD STORAGE—Midwest Cold Storage Co., 420 N. Broadway, soon lets contract 2 story, part bsmnt., 80x180 ft., rein.-con., brick cold storage addn. Foeller, Schober, Berners, Safford & Jahn, 310 Pine St., archts.

Wis., Racine — GARAGE — Racine Motor Service Co., 1665 Douglas Ave., soon lets contract 1 story, part bsmnt., 69x163 ft., steel, brick garage, concrete floor and footings, block fdn. A. J. Seitz, 216-5 St., archt.

LOW BIDDERS

Ark., Fayetteville — WAREHOUSE, etc. — Ozark Rural Electric Co-operative, Mar. 16, warehouse and office, from Tune Building & Excavating Co., Fayetteville, **$87,480.** CD 2/25—ENR 3/10.

CONTRACTS AWARDED

Ala., Blue Mountain—MILL—Linen Thread Co., Inc., Blue Mountain, mill addn., to Dethlefs & Hannon, Anniston, Approx. **$75,000.** Bids 3/15. CD 3/4—ENR 3/10.

●**Ala., Mobile**—MILL EXPANSION—Hollingsworth & Whitney Co., Magazine Point, Mobile, paper mill expansion, to Rust. Eng. Co., Exchange Bldg., Birmingham, Approx. **$10,500,000.** Fay, Spofford & Thorndike, 11 Beacon St., Boston, Mass., engrs. CD 2/28.

Calif., Oakland—WAREHOUSE, etc.—Daniel Gallagher Teaming Co., 2510 Wood St., 1 story, concrete warehouse and office, to M. J. King, Inc., 231 Franklin St., San Francisco, Approx. **$150,000.** J. Lloyd Conrich, 593 Market St., San Francisco, archt.

Calif., San Francisco—RESIN MFG. UNIT, etc.—General Paint Corp., 2627 Army St., synthetic resin mfg. unit and rein.-con. raw materials warehouse addn., to Barrett & Hilp, 918 Harrison St., San Francisco, Approx. **$200,000.**

Conn., Plainville—SERVICE GARAGE and SHOWROOM—Parson Buick Co., Whiting St., 1 story, 85x130 ft., brick, steel service garage and showroom, East St., to Spar Carpenter, 45 Gaylord St., Bristol, Approx. **$70,000.** CD 3/1—ENR 3/10.

Ga., Brunswick — TERMINAL — Atlantic Greyhound Corp., Kanawha Valley Bldg., Charleston, W. Va., bus terminal, to Hayes Constr. Co., Brunswick, **$68,254.** Bids 2/15. CD 2/8—ENR 2/17.

Ill., Chicago—FACTORY—D. E. Kennedy, Inc., 222 N. Bank Dr., general contract 2 story, brick, steel factory addn., to Fallon, O'Donovan & Rassas, 4619 School St., Approx. **$200,000.** Bids 2/1. CD 2/10—ENR 2/17.

Ind., Hammond — FACTORY — Screw Conveyor Corp., 700 Hoffman St., 3 story factory alterations, addns., to Peter Becker, 308 W. Elizabeth St., Calumet City, Approx. **$200,000.** Bachman & Bertram, 5116 Hohman Ave., archts.

Ia., Burlington — PLANT — Lagomarcino-Grupe Co., 101 Valley St., plant addn., to Carl A. Nelson & Co., Burlington, **$150,000.**

Ky., Glasgow—PLANT—Glasgow Mfg. Co., Glasgow, plant, to J. Fred Pace, Marrowbone, Approx. **$75,000.** CD 3/8—ENR 3/10.

Ky., Shelbyville — WAREHOUSE — Lee R. Walker & Raymond Mitchell, Owensboro, warehouse, Owner builds, **$100,000.** CD 2/9—ENR 2/24.

Mo., St. Louis—TERMINAL—Albert P. Reininger, 4307 Minnesota Ave., St. Louis, Zone 11, 1 story, 46½x86 ft. steel, concrete terminal, 1427 S. 3 St., to R. M. Meyer, 1913 S. 12 St., Zone 4, Steffens-Widmann & Co., 3453 Nebraska Ave., Zone 18, archt.

N. M., Deming—PLANT—American Smelting & Refining Co., 120 Broadway, New York, N. Y., lead-zinc plant, to Stearns-Rogers Mfg. Co., 1718-20 California St., Denver, Colo., **$600,000.** Awarded 2/18.

N. C., Whitnel—PLANT—American Yard & Processing Co., c/o contractor, mfg. plant, to Elliott Building Co., Hickory. Approx. **$68,000.**

O., Cincinnati—FACTORY, etc.—Wing Machine Tool, Div. of American Steel Foundries, 400 N. Michigan St., Chicago, Ill., 1 and 2 story, brick, rein.-con. steel factory addn., pattern shop and office, to Thorgersen & Ericksen, 228 N. La Salle St., Chicago, Ill. Approx. **$800,000.** Monroe Bowman & Assoc., 221 N. La Salle St., Chicago, Ill., archts.

S. C., Camden—BUS TERMINAL—Atlantic Greyhound Corp., Kanawaha Valley Bldg., Charleston, W. Va., bus terminal, to Alcott Constr. Co., Sumter, **$70,000.** CD 3/1—ENR 3/10, under LB.

Tenn., Sparta — WAREHOUSE — Growers Burley Warehouse, c/o C. Ray Ward, Sparta, tobacco warehouse addn. Owner builds. Approx. **$70,000.**

Tex., Beaumont—SAWMILL—Cox Sawmill Co., 1047 Beaumont St., reconstructing sawmill. Owner builds. Approx. **$70,000.**

Tex., El Campo—COMPRESSOR, etc.—The Texas Co., 720 San Jacinto St., Houston, 3,600 hp. compressors, pipe work, cooling tower, compressor and generator bldgs., structural steel constr. and iron on slab, to Tellepsen Constr. Co., 1710 Telephone Rd., Houston, **$475,000.** CD 3/18.

Tex., Kenedy—REFINERY—Archer-Daniels Midland Flax Processing Plant, Kenedy, linseed oil refinery, to Newman Constr. Co., Kenedy, Approx. **$100,000.**

Tex., Waco — GARAGE — Citizens National Bank, 514 Austin Ave., 1 story, part bsmnt., 77,000 sq. ft. parking garage to S. B. Swigert Constr. Co., Waco, **$94,020.** Harry L. Spicer, Amicable Bldg., Waco, archt.

Wash., Pasco—GRAIN ELEVATOR—Connell Grain Growers, Pasco, concrete grain elevator to Central Constr. Co., W. 918 Mallon St., Spokane, Approx. **$145,000.**

Wis., Cudahy—FACTORY—Cudahy Bros. Co., Cudahy, remodeling factory, to Permanent Constr. Co., 4100 N. 3 St., Milwaukee, Zone 12. Approx. **$350,000.**

Wis., Milwaukee—GARAGE—G. W. Hirth, Inc., 231 E. Abert Pl., Zone 12, 2 story, bsmnt., 125x135 ft. steel, brick, concrete block factory, concrete fdn. Owner builds. V. K. Boynton, 611 N. Broadway, Zone 2, engr.

Alta., Edmonton—MINE DEVELOPMENT—Gateway Gold Ltd., Edmonton, lead mine development, west shore entrance to Bathurst Inlet, Approx. **$100,000.** Owner builds.

Alta., Redwater—MINE DEVELOPMENT—Lingnora Gold Mines Ltd., 19 Richmond St., Toronto, Ont., mine development, Saddle Lake Area, own forces. Approx. **$200,000.**

B. C., Sandon — POWER PLANT — Silversmith Mines Ltd., Sandon, rehabilitation 150 ton concentrator, power plant imprvs., etc. day labor. **$200,000.** CD 3/9—ENR 3/24.

N. B., Elmtree—MINE DEVELOPMENT—Doulee Lead & Zinc Mines Ltd., Elmtree, lead, zinc and silver mines development. Owner builds. **$100,000.**

Ont., Brantford — WAREHOUSE — Hobbs Glass Ltd., 54 Duke St., Toronto, 2 story, rein.-con. brick, steel warehouse, to Johnson Bros. Co. Ltd., 37 Market St., Approx. **$80,000.** W. W. Dillon & Co., Bank of Toronto, Chambers, London, engrs.

Ont., Noranda—RAILROAD BLDG.—Ontario Northland Transportation Comn., North Bay, 1 story, bsmnt., 47x80 ft. concrete, steel, brick railroad bldg., to Courtemanche & Blanchett, Amos, Que., Approx. **$100,000.** Brown & Brisley, 12 E. Bloor St., Toronto, archts. Thomas D. Saunders, c/o owner, ch. engr.

Ont., Toronto — FACTORY — Bush Federal Ltd., Lakeshore Rd., concrete, steel brick factory, day labor. Approx. **$100,000.**

Que., Montreal — LOADING PLATFORM—Canadian National R.R., 36 McGill St., 30x1000 ft. loading platform, to freight yard bldg., to J. S. Hewson Ltd., 660 W. St. Catherine St., Approx. **$200,000.**

UNCLASSIFIED

BIDS ASKED

April 6

Iowa—RURAL DISTRIBUTION LINES—Southwestern Federated Power Co-operative, Creston, 121.1 mi. 34-5 kv rural distr. line, Adair, Madison, Warren, Clarke, Lucas, Wayne, Ringgold, Union and Adams Counties. Approx. $100,000. Stanley Eng. Co., Hershey Bldg., Muscatine, engr. CD 7/9—ENR 7/22.

April 6

B. C., Sechalt—WHARF REPAIRS, etc.—J. M. Somerville, secy., Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf repairs and imprvs. Approx. $56,000. Plans deposit $20. R. Blais, c/o owner, engr.

April 8

†**Colorado** — TRANSFORMERS, etc. — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, transformers, circuit breakers, horn-gap switchers, outdoor switches, disconnecting fuses, fuse cutouts, lightning arresters, current and potential transformers for Akron and Yuma Substation, Colorado-Big Thompson Proj., Spec. R7-50 (Region 7). L. N. McClellan, ch. engr.

Texas—RURAL DISTRIBUTION LINES—Southwest Texas Electric Co-operative, Inc., Eldorado, labor for 146 mi. rural distr. lines, Sutton, Crockett and Val Verde Counties. $60,000. Plans deposit $25. Beavers & Lodal, 1408 Transit Tower, San Antonio, engrs. CD 12/28/44—ENR 1/11/45.

April 11

†**Idaho, Malad City**—COMMUNICATIONS STATION—Civil Aeronautics Admin., Smith Tower Annex, Seattle, 4, Wash., communications station addn.

April 12

†**Washington**—STRUCTURAL STEEL—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Odair, misc. structural steel and aluminum for Grand Coulee Pumping Plant and misc. structural steel and gratings for Control Bay R, Grand Coulee Power Plant, Columbia Basin Proj., Spec. 2620.

April 13

California—TRAFFIC DEFLECTOR—State Div. Hys., P. Wks. Bldg., Sacramento, rein.-con. traffic deflector on Grapevine Grade between Ft. Tejon and 1.4 mi. north of Grapevine, Kern Co. G. T. McCoy, state hy. engr.

Minnesota—RURAL DISTRIBUTION LINES—Rural Co-operative Power Assn., Maple Lake, 244 mi. 69 KV rural distr. line, Pine Chisago, Isanti, Sherburne, Mille Lacs, Meeker, Kandiyohi, Benton and Wright Counties, $200,000. Plans deposit $25. United Eng. Service, 600 Kasota Bldg., Minneapolis, engrs.

April 14

California—TRAFFIC SIGNAL SYSTEMS—State Div. Hys., State Bldg., Los Angeles, traffic signal sys. and hy. lighting at Garvey and Denton Aves. and at 3rd St. and Garfield Ave. in Monterey Park and Montebello, Los Angeles Co. G. T. McCoy, P. Wks. Bldg., Sacramento, state hy. engr.

SOON LETS CONTRACT

Kansas — RURAL DISTRIBUTION LINES—Butler Rural Electric Co-operative, Eldorado, soon lets contract 204.56 mi. rural distr. lines, Butler, Sedgewick, Cowley, Harvey and Marion Counties. Approx. $200,000. Frank Horton & Co., Lamar, Mo., engrs. CD 2/23.

LOW BIDDERS

†Arizona and Nevada—BUS STRUCTURES, etc.—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Mar. 17, Schedule 1, bus structure, switch supports, tie-down frames, take-off structure for 230 kv. switchyard Davis Power Plant, Davis Dam Proj., Spec. 2583, from Gilmore Fabricators, Inc., 1960 Cypress St., Oakland, Calif., **$134,750.** CD 2/24—ENR 3/3.

Calif., San Francisco—TRACK REMOVAL, etc.—Dpt. P. Wks., City Hall, Mar. 16, removing tracks and reconstr. pavement, on Masonic Ave. No. 6 line, from Charles L. Harney, 575 Berry St., **$179,855.**

Mass., Natick—RECREATION CENTER—Italian American Recreation Center, c/o M. Palladino, 85 Middlesex Ave., Mar. 1, recreation center, Washington Ave., Whitney Field, from Louis Proia Constr. Co., Inc., 48 Silver Lake Ave., Newton, **$51,280.** Est. $75,000. CD 2/15—ENR 2/24.

†Oregon — TRANSMISSION LINE—Bonneville Power Admin., 739 N. E. Oregon St., Portland, Mar. 15, 21.4 mi. Detroit-Lyons 230 kv transmission line, Inv. 4510, Marion and Linn Counties, from C. J. Montag, N. E. 78 and Halsey Sts., Portland, **$637,504.** CD 3/3.

Pa., West View—ATHLETIC FIELD etc.—School Dist. of West View, athletic field, concrete, steel deck grandstand, drainage, dressing and lockery rooms, Perry Hy., from Groomes Const. Co., Highland and Spruce Sts., Cheswick, **$289,972.** Est. $300,000. John Rice, 950 Century Bldg., Pittsburgh, engr.

†South Dakota and Nebraska—TRANSMISSION LINE—Bureau Reclamation, Dpt. Interior, 504 Conroy Bldg., Casper, Wyo., rejected bids Dec. 21, Fort Randall-O'Neil 115 kv transmission line, near Fort Randall S. D., and O'Neill, Neb. L. B. **$351,785.** Will re-advertise.

CONTRACTS AWARDED

Calif., Palo Alto—TRANSMISSION LINES, etc.—City, City Hall, transmission lines, watermains, and gas mains. Owner builds. Approx. **$50,000.** Fabian S. Miller, City Hall, city engr.

Calif., Sacramento—MAUSOLEUM ADDN.—Sacramento Diocese of Roman Catholic Church, Sacramento, mausoleum addn. at St. Mary's Cemetery to Lawrence Constr. Co. & E. J. Mackey, 3020 V St., **$237,096.** Bids 3/7. CD 2/23—ENR 3/3.

Kan., Wichita — MOTOR COURT — P. E. Phipps, c/o Ted Mason, archt., 519 S. Broadway, motor court. Owner builds. Approx. **$50,000.**

Montana — OIL PIPELINE — Interstate Oil Pipe Line Co., 311 N. Broadway, Billings, 68 mi. crude oil pipeline from Elk Basin field to Laurel and Billings, incl. 12¾ in. outside diam. steel pipe, 7,000 tons steel, to C. B. Edmonds Constr. Co., Cody, Wyo. Awarded 3/16. CD 2/28—ENR 3/24.

Texas—RURAL DISTRIBUTION LINES—Lower Colorado River Auth., Giddings, 15 mi. heavier electric feeder line between Flatonia and Moulton, force account. Approx. **$50,000.** CD 5/22/47—ENR 6/26/47.

Texas—PIPELINE—Texas Eastern Transmission Corp., Commerce Bldg., Houston, excavating, removing 25½ mi. 8⅛ in. old pipeline and backfilling trench, own forces. **$90,000.** CD 4/29—ENR 5/13.

Texas—GAS LINES—United Gas Pipe Line Co., United Gas Bldg., Houston, exten. natural gas lines between Carthage and Center, Shelby Co., own forces. **$125,000.** CD 7/17/47—ENR 8/7/47.

Tex., El Paso—ICE DOCK—Texas & Pacific Ry. Co., R. J. Gammie, ch. engr., Texas and Pacific Bldg., Dallas, Zone 2, ice dock, force account. **$110,000.**

Tex., McAllen—BASEBALL PARK, etc.—Andred J. Paris, McAllen baseball park and grandstand, to H. Fusselmann, McAllen, Approx. **$55,000.**

●Tex., San Antonio—GAS LINE LATERALS, etc.—City Public Service Bd., 201 N. St. Marys St., gas line laterals and mains expans. in old sect. of city, **$425,000;** electric distr. lines, in outlying districts, **$600,000,** force account. CD 11/11—ENR 11/25.

Alta., Edmonton—OIL DEVELOPMENT—Municipality, under name of City of Edmonton Mineral Rights Development Co., City Hall, oil exploration and drilling, municipal oil rights holdings, own forces, **$100,000.** A. W. Haddin, city engr.

Man., Winnipeg—COMFORT STATION—Municipality, comfort station, Portage and Garry Sts., day labor, **$50,000.** W. D. Hurst, city engr.

N. S., Dartmouth—DOCKS—Ferry Comn., Dartmouth, dock reconstruction, to Foundation Maritime Ltd., 135 Lower Water St., Halifax, **$64,600.** CD 3/7.

N. S., Halifax—FERRY DOCK—Dartmouth Ferry comn. Dartmouth, ferry dock reconstruction, to Foundation Maritime, Ltd., 135 Lower Water St., Approx. **$64,600.**

Ont., Thornhill — SWIMMING POOL — Vaughan Twp., Maple, swimming pool, to Snider & Son, Woodbridge. Approx. **$60,000.**

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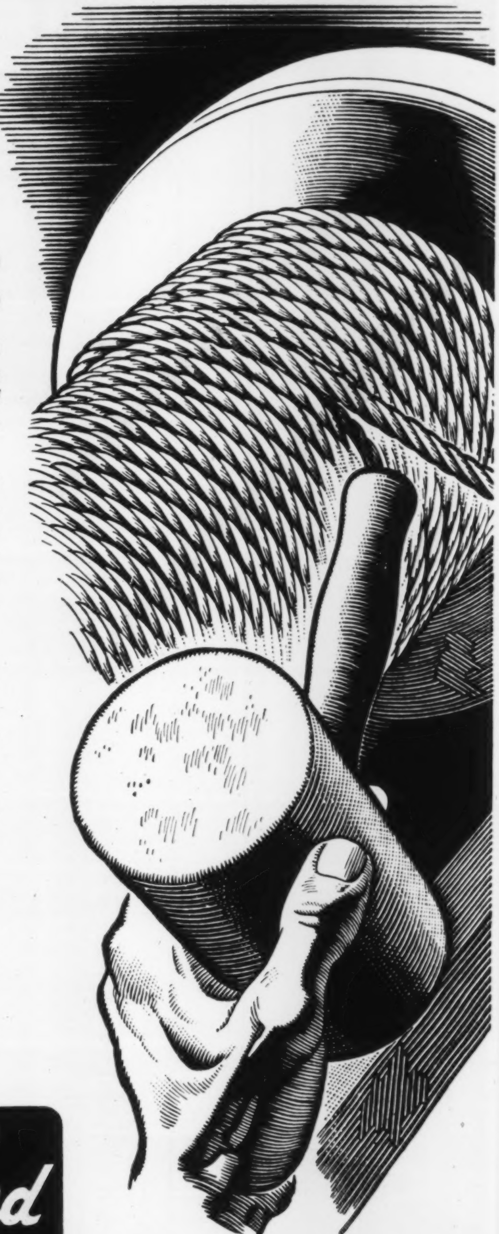

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CONSTRUCTION REPORTS—Second Section

Third Section Construction Reports on page 98

WATER SUPPLY

BIDS ASKED

April 7

Tex., Woodsboro—City, A. F. Sommer, mayor, WW sys. extens., improv. $55,000. Plans deposit $15. Extended date. M. C. St. John Engineers, 319 West Bldg., Houston, engrs. CD 3/8—ENR 3/10.

April 14

♦N. C., Cherry Point (br. New Bern)—Pub. Wks. Office, Marine Corps Air Station, Cherry Point, zeolite water softeners, Spec. 21025. Plans deposit $10. CD 12/14—ENR 12/16.

April 18

Ia., Storm Lake—City, City Hall, pump house, piping, elevated steel water tank, $60,000. Buell & Winter, 508 Insurance Exchange Bldg., Sioux City, engrs.

April 19

Tex., Beaumont—City, c/o Lonlar Combs, city clk., furnishing, electing 1 m.g. steel tank, Liberty and 13 Sts. $90,000. Freese & Nichols 407 Danciger Bldg., Fort Worth, engrs. CD 12/15—ENR 1/7.

April 27

Mich., Adrian—City, at office Adrian City Water Bd., City Hall, water treatment plant exten. Plans deposit $25. Finkbeiner, Pettis & Strout, 518 Jefferson Ave., Toledo, O., consult. engrs. CD 11/10—ENR 11/25.

LOW BIDDERS

Mass., Pittsfield—City Comrs. P. Wks., City Hall, Mar. 18, pipeline, Cleveland Brook Reservoir to First and Burbank Sts., Contr. 5, from Di Mascio Bros., 26 Everton St., Dorchester, **$59,345.** (**Correction**—contractor). CD 3/23—ENR 3/31, under LB.

CONTRACTS AWARDED

Conn., New Haven—Sperry & Barnes Co., 188 Long Wharf, 1 story, 20x35 ft., brick, masonry, pump. station, to C. W. Blakeslee & Sons, Inc., 58 Waverly St., **$36,500.**

Minn., Thief River Falls—City, P. G. Pederson, clk., City Hall, water treatment plant, to Johnson-Gillanders Co., Grand Forks, N. D., **$309,428.** Bids 2/15. CD 2/2—ENR 2/10.

O., Sandusky—City Comn., place 4,500 lin. ft. 20 in. c.i. pipe WW force main, to Verderber Constr. Co., Inc., 3007½ Monroe St., Toledo, **$28,646.** Est $32,346. CD 8/2/44—ENR 8/24/44.

R. I., East Providence—Town, C. C. Vialk, clk., Town Hall, 7,100 ft. 16 in. watermain Taunton Ave. to Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Warwick. Approx. **$90,000.** Charles A. Maguire & Assoc., 1018 Turks Head Bldg., Providence, engrs. CD 9/7/44—ENR 9/21/44.

Alta., Banff—Dominion Govt., Dpt. Mines & Resources, Ottawa, Ont., sys., own forces. Approx. **$50,000.** C. G. Childe, Banff, engr.

B. C., Field—Dominion Govt., Dpt. Mines & Resources, Ottawa, Ont., water supply, Yoho Park, day labor, Approx. **$45,000.**

Man., Flin Flon—Municipality, watermains, own forces. **$35,000.** William Venerables, Town Hall, engr.

Ont., London—Utilities Comn., E. V. Buchanan, genl. mgr., London, 10 in. watermain exten. to be laid to University of Western Ontario, own forces, **$40,000.**

SEWERS, WASTE DISPOSAL

BIDS ASKED

April 4

Md., Towson—Comrs. Baltimore Co., Court House, 4,160 lin. ft. 15- to 36-in. rein.-con. storm drains, 33,720 lin. ft. 6 and 8 in. vitr. clay pipe, 12,850 lin. ft. 8 to 18 in. vitr. clay pipe (extra strength), sewers, and house connections. Plans deposit $5. Wm. F. Neale, ch. engr. CD 2/7/45—ENR 2/22/45.

April 5

Mo., Kennett—City, J. W. Karsten, mayor, storm sewers, ditches, appurtenances. Plans deposit $10. Russell & Axon, 408 Olive St., St. Louis, Zone 2, engrs.

April 7

Tex., Woodsboro—City, sanitary sewerage sys. expans., imprvs. $60,000. Extended date. M. C. St. John & Assoc., 319 West Bldg., Houston, engrs. CD 3/8—ENR 3/10.

April 8

Wis., Turtle Lake—Village, D. A. O'Brien, clk., sanitary sewerage sys., sewage waste treatment plant. $150,000. Plans deposit $20. P. C. Bettenburg & Co., 1437 Marshall Ave., St. Paul, engrs. CD 1/26—ENR 2/3.

April 11

Conn., Bridgeport—City, Fred Schwarzkopf, clk. Hy. Comn., City Hall, storm and sanitary sewers, Contr. 1 2,200 ft. 6-to 48-in. Iranistan and South Aves.; Contr. 2 900 ft. 6 to 24 in. Iranistan and South Aves.; 1800 ft. 8 and 12 in. Golden Rod Ave.; 1,000 ft. 8 and 10 in. Wessles Ave., incl. manholes, sewer wells, appurtenances. Henry L. Rowland, City Hall, city engr.

April 12

Minn., St. Anthony—Village, H. H. Jennizes, clk., City Hall, 1,640 lin. ft. 9 in. sanitary sewers, 6 manholes, 4,361 lin. ft. 12 to 48 in. storm sewers, 21 catchbasins, 12 manholes, $50,000. Plans deposit $5 each. MacGregor & Davis, 1108 Nicollett Ave., Minneapolis, and 517 Commerce Bldg., St. Paul, engrs.

April 13

Calif., Larkspur—City, City Hall, sewer overflow and pump. plant, Approx. $50,000. Plans deposit $10. Bids 3/9 rejected. J. C. Oglesby, 1115 4 Ave., San Rafael and Harry N. Jencks, consult. sanitary engr., 63 Crescent Dr., Palo Alto, engrs. CD 3/17—ENR 3/24, under LB.

April 14

Tenn., Covington—Town, C. Y. Walker, mayor, Covington, Sects. I to VII (inclusive), 17,850 lin. ft. 8- to 18-in. sewers, and 1,750 lin. ft. 6- to 8-in. c.i. sewers, standard manholes, 2 sewage lift stations. Plans deposit $20. Russell & Axon, Third Natl. Bank Bldg., Union City, engrs. CD 8/17—ENR 9/2.

April 15

N. C., Dunn—Town, Town Hall, Contr. 1, sewage treatment plant; Contr. 2, sewer lines; Contr. 3, waterlines. Plans deposit $10. Paul M. Van Camp, Southern Pines, engr. CD 4/16/46—ENR 5/2/46.

April 20

Pa., Torrance—Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, sewage treatment plant addns. at Torrance State Hospital. Plans deposit $7.50. Capitol Eng. Corp., Dillsburg, engrs.

April 25

Mo., Sedalia—City, at office J. M. Bailey, city clk., City Hall, Contr. 5. South Sewage Treatment Plant, 28 St. and New York Ave. Plans deposit $15. Burns & McDonnell Eng. Co., Box 7088, Kansas City, Mo., consult. engrs. CD 11/21/45—ENR 12/13/45.

April 27

●Calif., Los Angeles—City, Bd. P. Wks., 153 City Hall, final units of Hyperion Activated Sluge Plant, El Segundo, aeration sys. $6,300,000. Lloyd Aldrich, city engr. CD 4/11/45—4/19/45.

LOW BIDDERS

●Pa., Phila.—Dpt. Pub. Wks., City Hall Annex, Mar. 11, East Central Schuylkill Intercepting Sewer, from Square Constr. Co., 115 S. Haven St., Baltimore, Md., **$1,379,090.** CD 2/17—ENR 3/3.

CONTRACTS AWARDED

Ark., Forrest City—City, Mar. 16, imprv. sewerage sys. incl. sewage treatment plant with auxiliaries, appurtenances and sewer connections, extens., to Patton & Young, Morrilton, **$282,999.** Bids 3/16, awarded 3/18. CD 2/28—ENR 3/10.

Ind., Hammond—Hammond Sanitary Dist., 5319 Columbia Ave., 2 intercepting sewers, Hammond and Munster, to Public Constr. Co., 5305 Hohman Ave., **$259,000.** Awarded 3/21. Leo Besozzi & Assoc., 5217 Hohman Ave., engrs. CD 11/15/44—ENR 11/30/44.

Que., St. Simon de Drummond—Municipality, sewers, to La Salle Paving Co. Ltd., Victoriaville, **$92,000.** CD 12/15.

BRIDGES

BIDS ASKED

April 8

●Minn., Minneapolis — State Hy. Comn., St. Paul, 1,190 ft. Bridge 5591 consisting one 630 ft. beam span, retaining wall approaches, 60 ft. roadway and two 6 ft. sidewalks over Great Northern & Minneapolis & St. Louis R. R. tracks, 7 St. N. in Minneapolis, for City of Minneapolis, $1,041,000. Plans deposit $5. E. Gorgenson, bridge engr. CD 1/3/47—ENR 1/23/47.

April 19

Tenn., Knoxville — Knox Co., Knoxville, Boyd's Bridge over Holston River. Patchen & Zimmerman, Daniel Field Airport, Augusta, Ga., engrs. CD 6/4—ENR 6/24.

About May 1

Ind., Muncie—City and Delaware Co., Muncie, steel, concrete, bridge over Buck Creek, $60,000.

CONTRACTS AWARDED

●New York—Bureau Contracts & Accounts, Albany, grading, drainage 0.89 mi. Van Wyck Expressway, Queens Co., to Tully & DiNapoli, Inc., 30-11 12 St., Long Island City, **$1,793,973.** Bids 2/2. CD 2/4—ENR 2/10, under LB.

O., Canton—Stark Co., Canton, 2 span concrete, steel bridge over east branch Mimishillen Creek on S. Cherry Ave., to Garaux Bros. Co., 415 9 St. S. W., **$78,983.** Awarded 3/21. CD 8/3/44—ENR 9/24/44.

STREETS AND ROADS

BIDS ASKED

April 6

Neb., Kearney—City, paving Dists. 77 to 82 (inclusive) and Fifth Ave. intersectings. $164,300. Kirkham Eng. Co., 1504 Dodge St., Omaha, engr.

April 12

Calif., Los Angeles—Bd. Supervs. Los Angeles Co., 501 Hall of Records, imprv. approx. 10,070 ft. La Ciengega Blvd. between La Cienega Blvd. and Knowlton Ave. near Inglewood, $250,000; imprv. Center St. between Paramount Blvd. and Downey Ave. near Paramount, approx. $50,000. C. E. Arnold, co. engr. and surv. CD 9/19/45—ENR 9/27/45.

April 26

N. D., McClusky—I. A. Boling, City aud., McClusky, grading, base, curb and gutter, bit., etc., 11 blocks, streets.

LOW BIDDERS

Calif., San Diego—City, Civic Center Bldg., Mar. 15, imprv. Imperial Ave. between 55 St. and Merlin Dr., from Daley Corp., P. O. Box 67, North Park Station, San Diego, **$68,833.** CD 3/1—ENR 3/3.

Colorado—State Hy. Dpt., Denver, grading, structures, and bridge 2.668 mi. State Hy. 3, from intersection of 8 Ave. and 5 St. in Greeley and exten. north to intersect present pavement, Weld Co., from L. J. Hesser, Greeley, **$160,090.** Est. $213,800. CD 3/14—ENR 3/17.

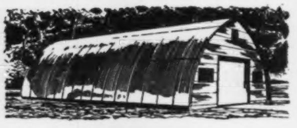
Iowa—State Hy. Dpt., Ames, Mar. 1, stabilized base and bit. surf. 13,081 mi. County Trunk Road D from Webb to Dickens, S. 205 (2), Clay Co., to Jay W. Craig Co., 1814 N. E. California St., Minneapolis, Minn., **$137,958.** CD 2/16—ENR 2/24.

♦New Mexico—Pub. Roads Admin., 254 Customhouse, Denver, Colo., Mar. 22, 4.321 mi. road proj. between Alamorgordo and Cloudcroft, New Mexico Forest Proj. 35-A-1, Otero Co., from Brown Cont. Co., P. O. Box 1497, Albuquerque, **$337,801.** CD 3/9.

●Texas—State Hy. Comn., Austin, Mar. 22, grading, structure, flexible base, base preservative 12.11 mi. U. S. 290, St. 21, FM 20, Bastrop Co., from H. R. Henderson & Co., Marshall, **$528,388*****grading, structures, pavement 0.427 mi. Hy. N. S. 87, Proj. U. I. 1083 (4), Contr. 2, Bexar Co., from M. B. Killian & Co., Inc. and Killian-House Co., Sunset Rd., San Antonio, **$1,066,631*****c.conc. and hot mix asph. 5.48 mi. Hy. U. S. 67, F. I. 474 (4), Bowie Co., and c. conc. 1.083 mi. Hy. Spur. 171 Proj. C. 882-2, 4, Orange Co., from Austin Road Co., Box 1590, Dallas, **$345,579** and **$94,740** respectively***wid'n bridges, flexible base and asph. 2.669 mi. Hy. US 283, 67 and 84, Proj. F. 584 (13) and F 583 (9), Brown Co., from Harry Campbell, 2854 Berry St., Fort Worth, **$321,243** ***wid'n grading, structures and pavement 3.878 mi. U. S. Hy. 77, C. 327-8 and 9- 10 and 1, Cameron Co., from South Texas Constr. Co., San Benito, **$169,335*****c.conc. 0.375 mi. Hy. US 75, Proj. C 92-1-5, Dallas Co., from Texas Bitulithic Co., Box 5297, Dallas, **$104,817***** flexible base, single asph. 19.05 mi. Hy. FM 788 and 789, V. 800-5-1 and V. 1126-1-1, Hale Co. from Ernest Loyd, Box 1120, Fort Worth, **$133,308*****seal coat 104.733 mi. Hys. US 84, St. 290, US 82, US 62, St. 51, St. 86 and ST 194 Proj. C 52-6-10, etc. from Warren & Purtell, Inc., Lubbock, **$77,965*****wid'n flexible base, single asph. surf. 9.459 mi. Hy. 11, C 83-7-5, Camp Co., and flexible base, double asph. 3.733 mi. Hy. 146, Proj. S 670 (7), Liberty Co., from C. R. Heidelberg, Jacksonville, **$83,843** and **$73,815** respectively***flexible base and seal coat 8.592 mi. Hy. FM 124, Proj. S 1016 (1), Panola Co., from Stroud Bros. Contractors, Joinerville, **$97,191*****flexible base, prime coat and single asp. 18.545 mi. Hy. FM 95, Rusk Co., from Dave Mc Cullough, Emory, **$86,671*****grading, structures 23.361 mi. Hy. St. 202, Proj. S. 401 (3), Webb Co., from M. E. Ruby, San Marcos, **$202,309.** CD 3/2—ENR 3/10.

●Texas—State Hy. Comn., Austin, Mar. 23, c. conc. wid'n and hot mix asph. 1.367 mi. U.S. Hy. 90, Proj. C. 28-6-11, Jefferson Co., from Harrison Eng. & Constr. Corp., 4638 Mill Creek Parkway, Kansas City, Mo., **$77,172*****grading, structures 2.295 mi. Hy. 73, FI-1052 (17), Harris Co., from Russ Mitchell, Inc., 5304 Old Spanish Trail, Houston, **$608,370*****flexible base, double asph. 8.719 mi. Hy. 159, Austin Co., from H. R. Henderson & Co., Marshall, **$85,994*****foundation course, single asph. 8.091 mi. Hy. FM 215, V. 1054-2-1, Bosque Co., from W. S. Crawford Co., 4817 Montrose Dr., Dallas, **$59,955*****flexible base double asph. 19.347 mi. Hy. U.S. 285, S. 1058 (2), Pecos Co., from T. C. Cage, 6637 W. Commerce St., San Antonio, **$239,830*****flexible base, b. conc. 13.106 mi. Hy. U.S. 77, Proj. C-268-1, 1 and 2-8, 12 and 8, Fayette Co., from M. B. Killian & Co., Inc., P.O. Box 1981, San Antonio, **$207,769*****flexible base, single asph. 20.293 mi. Hy. FM 734, V. 1102-1-1, McColloch Co., from Killian-Keller Co., P. O. Box 1981, San Antonio, **$224,672*****soil asph. base, single asph. 9.391 mi. FM 47, S. 234 (2), Van Zandt Co., from E. W. Hable & Son, Corsicana, **$79,829*****selected material and single asph. 12.043 mi. Hy. St. 350, S. 323 (5), Howard Co., from Holland Page, P. O. Box 1181, Austin, **$175,225** ***wid'n, structures, flexible base and double asph. 7.999 mi. Hy. 73 T. C-368-1-19, Chambers Co., from Southern Contg. Co., 1901 Meadow Brook Dr., Austin, **$188,379*****grading, structures 10.692 mi. Hy. 87, F 649 (3) and (2), Newton and Orange Counties, from W. R. Aldrich & Co., Box 1751, Baton Rouge, La., **$292,691***** hot mix, b. conc. 5.377 mi. Hy. US 67, FI 826 (9), Dallas Co., from Southwest General Constr. Co., 5609 Yale Blvd., Dallas, **$460,559.** CD 3/2—ENR 3/10.

Tex., Houston—Harris Co., Courthouse, Mar. 21, asph. 5.6 mi. Red Bluff Rd. from LaPorte Rd. to Spencer Hy., No. 1630-1-3-4 and asph. 3.4 mi. 12 St. Rd. No. 1842-1, from Gaylord



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CONTRACTS AWARDED

Alabama—State Hy. Dpt., Montgomery, asph. 4.325 mi. Avondale-Irondale Rd., Jefferson Co., to Dozier Bros., Mt. Meigs, **$783,187.** Bids 2/25. CD 3/2—ENR 3/10, under LB.

Ia., Sac City—Sac Co., Sac City, grav. roads, to A. L. Christian, Lake View, **$55,818.** D. E. McLean, co. engr.

Mich., Detroit—City, Dpt. P. Wks., 104 City Hall, street paving, Contr. P. W. 682, Group 49-1 and 49-2, to Cooke Constr. Co., 1116 Penobscot Bldg., **$55,525.** CD 2/28—ENR 3/3.

●**South Carolina**—State Hy. Dpt., Columbia, to Super & Co., Whitmire, bit. 12.657 mi. Road 23 and 29, S. C. Dockets 13.274 and 13.275, Chesterfield Co. **$133,596;** bit. surf. or wid'n and bit. 3.344 mi. Roads 31, Route 8 and 133 and Roads 45, 83, 84, U. S. Rt. 123 and Rt. 96, S. C. Docket 39,258, Parts 1 through 6, **$84,565;** bit. 17.859 mi. Rt. 177 and Road 80, FI-2562 (3) and FI 2561 (1), Richland and Newberry Counties, **$385,060*****to W. A. Fuller & Sons, Barnwell, bit. 4.671 mi Roads 51, 43 and 47 from Road 26 northerly by way of Harmony Church to York Co. line, S. C. Docket 12.263, Chester Co., **$51,676;** grading and bit. 12.365 mi. Roads 30, 38, 29 and 33, S. C. Dockets 30.263 and 30.264 Laurens Co. **$113,967** ***to Robert Lee, Inc., Manning, wid'n and bit. 5.259 mi. U. S. Routes 15 and 17 and Road 55, F-179 (2) and F-208 (5), Colleton Co. **$148,204** ***to Wilson Constr. Co., Marion, wid'n and bit. and curb, gutter and sidewalk 0.843 mi. U. S. Rt. 301, F-50 (6) Parts 1 and 2, Dillon Co. **$50,041*****to E. H. Hines Constr. Co., Anc., Greenwood, bit. 6859 mi. Roads 62 and 71, S. C. Docket 24.238, Parts 1 and 2, Greenwood Co. **$101,654*****to George Lokey Contg. Co., Augusta, Ga., bit. 3.786 mi. Road 14 from Route 35 at Crocketville to Route 63, S. C. Docket 25.217, Hampton Co., **$53,429***** to Fox & Green Contractors, Inc., Lexington, bit. 9.455 mi. Roads 115, 116, 88, 94, 114, 117, 127, 132, 121, 131 and 130 S. C. Docket 32.268, Parts 1 and 2 Lexington Co., **$98,603*****to Cherokee, Inc., Sumter Hy., Columbia, bit. 8.875 mi. Roads 66 and 67, S. C. Dockets 40.307 and 40.324, Richland Co. **$82,182.** Grand total $1,302,977. Bids 3/15. CD 3/4—ENR 3/10.

Tex., Beaumont—City, Otho Plummer, mayor, street reconstructing and drainage, various sections of city, force account. **$90,000.** R. C. Black, city engr. CD 2/11—ENR 3/3.

Tex., Henderson — Rusk Co., R. M. Leath, judge, Courthouse, road reconstruction, surf., drainage, **$110,000;** reconstructing road, **$75,000,** force account.

EARTHWORK, WATERWAYS

BIDS ASKED

After March 24

♦**Idaho**—U. S. Eng., 19 East Poplar St., Walla Walla, Wash., restoration levee and constructing revetment, right bank, Boise River, ¼ mi. downstream from Red Bridge, west of Parma, Canyon Co., Serial No. Eng. 45-164-49-50.

About April 5

♦**Illinois**—U. S. Eng., 826 U. S. Court House and Custom House, 1114 Market St., St. Louis, Mo., levee imprvs. Harrisonville and Ivy Landing Drainage and Levee Dist., Proj. Item 1-A (1), Monroe Co. CD 3/24.

About April 8

♦**Illinois**—U. S. Eng., 826 U. S. Court House and Custom House, 1114 Market St., St. Louis, 1, Mo., placing 5.5 mi. crushed stone or grav. surf. top levee and access road approaches, placing rip rap stone on spur levee, Proj. IV-C, Degognia and Fountain Bluff Levee and Drainage Dist., Jackson Co.

April 8

●**Pennsylvania**—U. S. Eng., 925 New Federal Bldg., Pittsburgh, Conemaugh Dam, Serial No. Eng-36-058-49-99. Extended date. CD 3/2—ENR 3/10.

April 12

♦**Louisiana**—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, automatic gage structure, Belle Pass, Lafourche Parish, Serial No. Eng. 16-047-49-250.

April 14

♦**Arkansas**—U. S. Eng., P. O. Box 60, Vicksburg, Miss., clearing Narrows Reservoir above Narrows Dam, on Little Missouri River in Pike Co.

April 15

♦**Ia., Council Bluffs**—U. S. Eng., 1709 Jackson St., Omaha, Neb., Agricultural Levees, Unit L-627 and Unit L-624, near here, Serial No. Eng., 25-066-49-192. CD 3/21—ENR 3/24.

April 18

La., Baton Rouge—State Div. Admin., Capitol Annex, Baton Rouge, enlarging earth dam, rein.-con. spillway, Lake Bistineau Dam, Bossier and Bienville Parishes.

April 19

♦**Colorado**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., earthwork, concrete lining, structures, and access road, Horsetooth Feeder Canal, Station 67 plus 52.1 to Station 475 plus 61.0 exclusive of Tunnels 2, 3, and 4, about 8 mi. west of Loveland to about 6 mi. southwest of Ft. Collins, Colorado-Big Thompson Proj., Spec. 2613. L. N. McClellan, ch. engr.

♦**North Dakota**—Bureau Reclamation, Dpt. Interior Bldg 1-A, Denver Federal Center, Denver, Colo., clearing 200 acres of Heart Butte reservoir site, Missouri River Basin Proj., Spec. R6-BIS-14 (Region 6). CD 5/25/44 —ENR 6/15/44.

April 20

♦**Florida**—U. S. Eng., P. O. Box 4970, Jacksonville, emergency flood control, Hillsboro Canal, Inv. No. Eng-08-123-49-80. CD 11/24/43 —ENR 12/2/43.

♦**Michigan**—U. S. Eng., 428 Federal Bldg., Milwaukee, Zone 1, Wis., removal and disposal approx. 596 lin. ft. south pier and revetment, constructing 772 lin. ft. steel sheet pile south pier and revetment, widening river entrance channel, Manistee Harbor, Serial No. Eng. 47-013-49-56.

♦**Tennessee**—U. S. Eng., P. O. Box 97, Memphis, Zone 1, dressing, fertilizing, sodding and seeding approx. 45 acres levee crown and slopes, Item W-36R-EC, in Elk Chute Drainage Dist., Serial No. Eng-40-041-49-117.

April 21

♦**California**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing del. f.o.b. cars shipping point or f.o.b. cars Herdlyn, Calif., steel handrailing for Tracy Pumping Plant, Central Valley Proj., Spec. 2622. L. N. McClellan ch. engr.

♦**Montana**—Bureau Reclamation, Dpt. Interior, Hardin, drilling and water testing cavities investigations of Yellowtail damsite, Missouri River Basin Proj., Hardin Unit, Spec. R6-27 (Region 6) L. N. McClellan, Bldg. 1A, Denver Federal Center, Denver, Colo., ch. engr.

April 26

♦**Mississippi**—U. S. Eng., P. O. Box 60, Vicksburg, Walker Lake Pump Station, Serial No. Eng., 22-052-49-150. Extended date. CD 3/11 —ENR 3/17.

LOW BIDDERS

●**New York**—Bureau Contracts & Accounts, Albany, Mar. 23, guard gates and spillway at Mohawk and guard gates and widening short sect. canal at Little Falls, both Herkimer Co., from A. S. Wikstrom, Inc., Box 217, Skaneateles, **$1,199,032** and **$592,800** respectively. CD 3/3—ENR 3/10.

Va., Virginia Beach—Town, Lawrence Lockwood, mgr., Virginia Beach, Mar. 18, reconstructing seawall and boardwalk, from Gannaway & Magann, 2420 High St., Portsmouth, **$188,299.**

Ont., Ingersoll—Thames River Project & Dpt. Planning & Development, Province of Ontario, Mar. 21, Sect. 1, channel imprvs. to south branch Thames River, from Beachville through Ingersoll, incl. 1,400,000 cu. yd. excavation, rip rap etc., from Aiken & MacLachlan, Ltd., Hartzell St., St. Catherines, Approx. **$89,765*****Sect. 2, from R. D. Sutherland, West Hill, Approx. **$402,332*****Sect. 3, from Storms Contg. Co. Ltd., 1 Copeland St., Leaside, Approx. **$142,655.** CD 3/10—ENR 3/17.

CONTRACTS AWARDED

Calif., Long Beach—City, 1333 El Embarcadero, rock dike exten. at Long Beach Harbor, to Connelly-Case-Kiewit, P. O. Box 1251, Long Beach, **$303,000.** Bids 8/24/48, awarded 3/7/49. CD 12/6/44—ENR 12/28/44.

Fla., Miami Beach—Broadwalk Hotel, Inc., c/o contractor, bulkhead and groynes, to Reed Constr. Corp., 1345 20 St., **$34,000.**

Fla., Miami Beach—Milton B. Edelson, c/o contractor, bulkhead and groynes, to Reed Constr. Corp., 1345 20 St.

AIRPORTS AND AIRBASES

BIDS ASKED

April 8

♦**Fla., Key West**—POWER LINE, etc.—Pub. Wks. Office, U. S. Naval Station, Key West, electric power line from sub-station in Key West to power plant at Boca Chica Field, power line from plant near east fueling area to Bldgs. 1002 and 1005 at Boca Chica Field; Imhoff type sewage treatment plant at U. S. Naval Air Station, Boca Chica Field. Plans deposit $10 each.

April 21

♦**Wis., Madison** — NATIONAL GUARD FACILITIES — U. S. Eng., Merchandise Mart, Chicago 54, Ill., constructing National Guard Facilities for Wisconsin Air National Guard, at Traux Field, Serial No. Eng-11-032-49-76.

About May 19

♦**Mass., East Boston** — LEAN-TO ADDNS. — U. S. Eng., Bldg. 21, U. S. Naval Drydock, South Boston, lean-to addns., Logan Airport.

CONTRACTS AWARDED

B. C., Fort St. John—HOUSING—Dominion Govt., Dpt. National Defense, Ottawa, Ont., 50 dwellings for R.C.A.F. Personnel, to Poole Constr. Co. Ltd., 218 Tegler Bldg., Edmonton. Approx. **$400,000.** Canadian Commercial Corp., 70 Lyon St., Ottawa, Ont., engrs.

Yukon Territory, Whitehorse—HOUSING—Dominion Govt., Dpt. National Defense, Ottawa, Ont., 50 dwellings for R.C.A.F. personnel, to Poole Constr. Co. Ltd., 218 Tegler Bldg., Edmonton, Alta. Approx. **$400,000.** Canadian Commercial Corp., 70 Lyon St., Ottawa, Ont., engrs.

LATIN AMERICA

Mexico, Mezquitla — Mexican Govt., Sria. de R. H., Balderas, 94, Mexico, D. F., receiving bids April 19, drinking water distr. sys. and branches in Mezquitla Valley. Plans deposit $30. Ing. Manuel Anaya y S. Sria. de R. H., Balderas, 94, Mexico, D. F., chief sanitation engr.

PUBLIC BUILDINGS

BIDS ASKED

About April 5

N. C., Kinston—Caswell Training School, Roy M. Purser, bus. mgr., Kinston, two 1 story, 167x300 ft. 160 bed colony bldgs. Plans deposit $30 for general, $15 for heating, plumbing and electrical work. Eric G. Flannagan, Box 891, Henderson, archt. W. M. Wallace, 2nd, 126 E. Parrish St., Durham, engr.

April 5

♦Mass., Salem—At office Officer in Charge of Construction, First Naval Dist., 495 Summer St., Boston, 3-car garage, U. S. Naval Reserve Training Center, Spec. 22051. Plans deposit $10.

♦N. C., Fort Bragg—U. S. Eng., 308 Customhouse, Wilmington, 32 family housing units with appurtenances and outside utilities, Eng-31-075-49-35. CD 2/24—ENR 3/10.

N. S., Sheet Harbour—H. Fellows, ch. engr., c/o Nova Scotia Power Comn., Halifax, steam station. Plans deposit $25.

April 6

Mass., Boston — City of Boston Housing Auth., 10 Post Office Sq., Boston, 39 unit, brick veterans housing, Sumner and Willis Sts., Dorchester. $400,000. Plans deposit $50. Saltonstall & Morton, 53 State St., Boston, archts. CD 12/15—ENR 1/7.

Ont., Toronto — Chairman Bd. Control, Toronto, 1 story, 80x400 ft. frequency conversion bldg., Islington. Plans deposit $25.

April 7

♦Me., Caribou — U. S. Eng., Bldg. 7, Camp Keyes, Augusta, motor vehicle storage bldg., Serial No. Eng. 17-018-49-01. Extended date. CD 3/1—ENR 3/3.

♦Me., Gardiner — U. S. Eng., Bldg. 7, Camp Keyes, Augusta, motor vehicle storage bldg., Serial No. Eng., 17-018-49-01. Extended date. CD 3/1—ENR 3/3.

♦Me., Millinocket — U. S. Eng., Bldg. 7, Camp Keyes, Augusta, motor vehicle storage bldg., Serial No. Eng. 17-018-49-01. Extended date. CD 3/1—ENR 3/3.

April 8

●Alta., Edmonton—G. H. W. Monkman, Dpt. P. Wks., Edmonton, memorial hospital. $1,500,000. A. M. Brydon, 1104 Bay St., Toronto, Ont., archt. CD 11/12/45—ENR 12/27/45.

Ont., Byron — W. J. Blackwell & Assoc., archts., 284 Dundas St., London, 2 and 3 story, 24x70 ft. main bldg., 50x100 ft. wing, steel, rein.-con. brick pavilion, for Queen Alexandra Sanatorium Bd., Byron. Approx. $450,000.

April 12

Calif., Imola—State Div. Architecture, P. Wks. Bldg., Sacramento, 2 story, bsmnt., 25,000 sq. ft. rein.-con. administration bldg. at Napa State Hospital. Plans deposit $25. Anson Boyd., state archt. CD 2/28/45—ENR 3/8/45.

Calif., Los Angeles—Bd. Supervs., Los Angeles, 501 Hall of Records, Honor Farm imprvs., Schedule 1, recreation and assembly bldg., mess hall, etc. $250,000. Claude Beelman & Herman Spackler, 7421 Beverly Blvd., archts. CD 1/17—ENR 1/27.

♦Ill., Camp Ellis — National Guard Bureau, Camp Ellis, 2 motor storage bldgs. east of St. Louis, Serial No. NG 11-115-49-8.

●Tex., Alamo Heights (San Antonio P. O.)—Alamo Heights Independent School Dist., c/o A. E. Robertson, pres., 5941 Broadway, Alamo Heights, San Antonio, high school, incl. heating plant. $1,350,000. Extended date. Bartlett Cocke, 3501 Broadway, San Antonio, archts. CD 3/16—ENR 3/24.

N. S., Halifax—H. F. Bezandon, 81 Sackville St., auditorium and gymnasium, Queen Elizabeth High School. Plans deposit $100. C. A. Fowler & Co., Capitol Bldg., archts. CD 12/27—ENR 1/20.

April 13

♦Va., Norfolk—Pub. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Zone 11, rebuilding Sect. A in Warehouse 211 at U. S. Naval Base (Marine Corps Depot of Supplies), Spec. 21697. Plans deposit $10.

Ont., Toronto — Toronto Transportation Comn., 35 Yonge St., track maintenance bldg., workshop bldg., Davenport Rd.

April 14

Mont., Butte — Butte Memorial Hospital, c/o York & Sawyer, archts., 101 Park Ave., New York, N. Y., 5 story, brick hospital. Approx $250,000. Edwards & Hjorth, 1267 6 Ave., New York, N. Y., engrs. CD 1/14—ENR 2/3, under Commercial Bldgs.

♦Va., Warrenton—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., 2 story row house-colonial family quarters. Serial No. 49-080-49-124-(29)M. CD 10/26—ENR 11/11.

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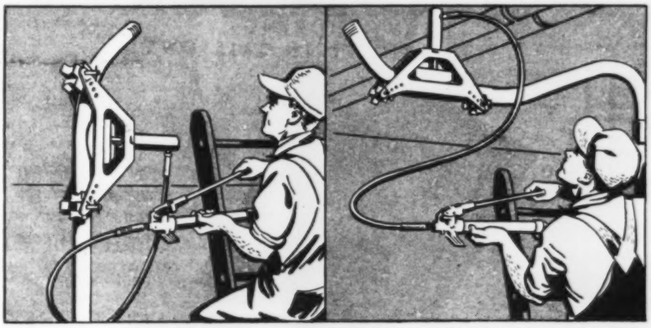

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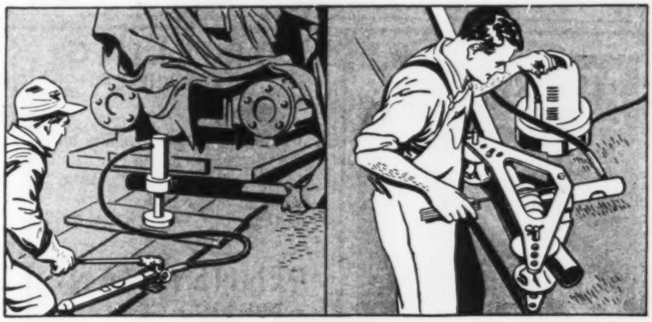

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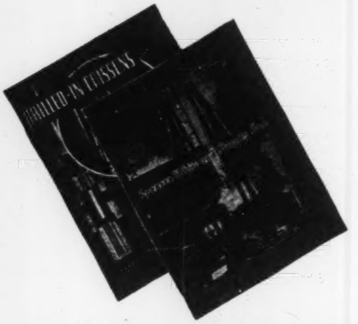

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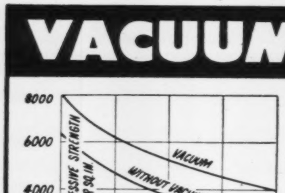

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April 15

●**Mass., Gloucester**—City Housing Auth., Gloucester, 120 unit, frame, brick veneer veterans housing, Babson Farm off Washington St. $1,200,000. Thomas Worcester, Inc., 84 State St., Boston, engr. and archt. CD 11/11—ENR 11/25.

On or About April 16

†**Mass., Boston**—U. S. Eng., Bldg. 21, U. S. Naval Drydock, South Boston, motor vehicle storage bldg. Plans deposit $10. CD 3/8—ENR 3/10, under LB.

April 19

Ind., Vincennes—Bd. Comrs. Knox Co., Bd. Hospital Trustees, c/o K. R. Messel, aud., Court House, Good Samaritan Hospital addn. $500,000. Plans deposit $25. Lester Routt, Citizens Trust Bldg., archt. CD 6/18—ENR 7/7.

April 20

Calif., Eureka—Eureka Bd. Educ., Eureka, Franklin and Jefferson Elementary School addns. $250,000. Plans deposit $25. Masten & Hurd, 526 Powell St., San Francisco, archts.

●**N. Y., Binghamton** — Binghamton Housing Auth., City Hall, housing. $2,000,000. A. T. Lacey & Sons, 52 Exchange St., archts.

N. Y., New York—At office Chief Engr. Port of New York Auth., 111 Eighth Ave., Zone 11, steel work for bus terminal, Contr. BT-3. Plans deposit $25. CD 2/4/47—ENR 2/20/47.

Tex., Canyon — West Texas State Teachers College, Canyon, masonry school. $250,000. Plans deposit $25. Macon O. Carder, 419 Fisk Bldg., Amarillo, archt. CD 10/5/45—ENR 10/18/45.

April 21

O., Cincinnati—Bd. Educ., 216 E. 9 St., 3 story, bsmnt., brick, steel technical school. $440,000. C. F. Cellarius, 906 E. St. Paul Bldg., 111 E. 4 St., archt. Fosdick & Hilmer, Union Trust Bldg., engrs. CD 11/12.

Ore. Eugene—City, City Hall, headworks, etc. at Walterville Hydroelectric Station. Plans deposit $25, Cornell, Howland, Hayes & Merryfield, Corvallis, engrs. CD 12/26/46—ENR 1/2/47.

Pa., Uniontown — Bd. Educ. North Union Twp., Uniontown, shell for high school addn., Coolspring St., near hear. $300,000. Altman & Altman, 206 Derrick Ave., archts. CD 3/9—ENR 3/17.

About April 22

†**Me., Westbrook** — U. S. Eng., Bldg. 21, U. S. Naval Drydock, South Boston, Mass., motor vehicle storage bldg. Extended date. CD 1/28—ENR 2/3.

April 25

Calif., Modesto—Modesto City School Dist., Modesto, 1 story, rein.-con. auditorium with metal truss partitions at Modesto High School, $400,000. Plans deposit $20. Harry J. Devine, 1012 J St., Sacramento, archt. CD 11/1—ENR 11/11.

April 26

†**Washington** — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Odair, ten 12 in. jet pumps for Units R1 to R9, Grand Coulee Power Plant, Columbia Basin Proj., Spec. 2623.

About Apil 28

†**Mass., Wakefield** — U. S. Eng., Bldg. 21, U. S. Naval Drydock, South Boston, motor service bldgs., Camp Edwards.

About May 3

†**Tex., Fort Bliss (El Paso P. O.)**—U. S. Eng., P. O. Box 1538, Albuquerque, N. M., relocating ordnance repair shop from Camp Gruber to Fort Bliss, (RUG-92), Serial No. Eng. 29-005-49-72.

May 5

†**New Mexico and Texas** — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Hatch, N. M., one 3,000 kva. outdoor, package-type substation for Hot Springs substation, Rio Grande Proj., Spec. 2624.

May 10

●**Calif., Stockton** — Stockton Unified School Dist., 324 N. San Joaquin St., 2 story, 125,144 sq. ft. first floor and 39,238 ft. 2nd floor, concrete, steel, stucco Franklin High School. $3,000,000. Plans deposit $60. Joseph Losekann, Elks Bldg., Stockton, archt. E. D. Francis, Native Sons Bldg., Sacramento, engr. CD 5/11/48—ENR 5/27/48.

June 1

●**S. C., Spartanburg** — Spartanburg General Hospital, c/o James L. Rogers, supt., hospital addn. $1,250,000.

June 7

†**N. M., Albuquerque**—Veterans Admin., Munitions Bldg., Wash. 25, D. C., Tuberculosis Hospital Bldg. 20, consisting Connecting Corrider 20-3, Steel Water Tank and Tower 19, pumps and equip. in Shops Bldg. 6, boiler in Boiler House Bldg. 7, Wet Salt Storage Basins No. 56, etc., Spec. 4905. CD 8/16—ENR 8/19, under LB.

LOW BIDDERS

†**Del., Wilmington**—U. S. Eng., 121 N. Broad St., Phila. 1, Pa., rejected bids Feb. 8, consolidated quarters apartment for Veterans Admin.,

765 Arlington Blvd., Wash., D. C., L.B. **$416,200.** CD 2/18—ENR 2/24, under L.B.

Fla., Haines City—Polk Co. Bd. Pub. Instruction, Bartow, rejected bids Mar. 10, high school. (**Correction**-status). CD 3/17—ENR 3/24, under CA.

Ind., Muncie — Muncie School Bd., Mar. 22, brick, steel Garfield School addn., from Hagerman Constr. Co., 402 E. Superior St., Ft. Wayne, **$466,240.**

Ky., Lexington—University of Kentucky, Lexington, service bldg., from Geo. H. Rommel Co., 958 Logan St., Louisville, **$773,000.** CD 7/25/46—ENR 7/4/46.

†Md., Bethesda — P. Bldgs. Admin., 1125 Federal Wks. Agency Bldg., Wash., D. C., bids Mar. 24, not opened, utility bldg., National Institute of Health. CD 3/3—ENR 3/10.

●N. Y., New York—New York City Housing Auth., 63 Park Row, Zone 7, Mar. 22, general contract, Parkside Houses, Proj. NYC-17 in area bounded by Bronx Park East, Adee Ave., White Plains Rd. and Arnow Ave., Bronx Boro, from S. S. Silberblatt, 25 W. 45 St., Zone 19, **$5,479,900*****plumbing, from Fein-Schlosberg, 1758 Second Ave., Zone 2, **$773,000*****electrical work, from Simpson Electric Co., 71 E. 116 St., Zone 29, **$287,800.** CD 3/1—ENR 3/3.

O., Bowling Green — Bowling Green State University, Bowling Green, Mar. 22, general contract Unit A science bldg., from Watts Constr. Co., 1235 Miami St., Toledo, base bid **$328,823.** CD 2/25—ENR 3/10.

●Pa., Danville — Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, Mar. 23, general contract, Admission Bldg. 1 at Danville State Hospital, from S. H. Evert Co., Inc., Danville Rd., Bloomsburg, **$1,043,718;** heating and plumbing, from John F. Moleski, 1020 Chestnut St., Kulpmont, **$256,200.** CD 2/28 ENR 3/3.

Pa., Norristown — Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, Mar. 23, general contract renovation Bldg. 7 at Norristown State Hospital, from Wark & Co., 1700 Sansom St., Phila., Zone 3, **$482,540.** CD 2/23—ENR 3/10.

Pa., Phila. — Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, rejected bids Mar. 9, heating and ventilating for Bldg. N-9, Maximum Security Bldg. for male patients at Phila. (Byberry) State Hospital, L. B. **$345,045.** CD 3/14—ENR 3/17.

Pa., Woodville — Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, Mar. 23, general contract dietary bldg. at Woodville State Hospital, from Allegheny Building & Supply Co., 899 Bingham St., Pittsburgh, Zone 3, **$384,600.** CD 2/23—ENR 3/3.

●†Va., Camp Lee (br. Petersburg)—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., Mar. 22, 2 barracks for enlisted men, concrete and masonry constr., Serial No. 49-080-49-104 (26) M-A, from Virginia Eng. Co., Newport News, **$1,561,000.** CD 2/9—ENR 2/24.

CONTRACTS AWARDED

Calif., Pasadena—Pasadena City School Dist., 351 S. Hudson Ave., 5 La Canada Junior High School bldgs., La Canada, to G. Iannini, 2701 Sepulveda Blvd., Manhattan Beach, **$614,589.** Bids 3/3, awarded 3/15. CD 2/21—ENR 3/17, under Calif., La Canada.

Calif., Temple City—Pasadena City School Dist., 351 S. Hudson Ave., six 1 story, frame stucco school bldgs. at Temple City High School, to L. W. Odell, 1265 Sierra Madre, San Marino, **$309,977.** Bids 3/10. CD 2/18—ENR 2/24.

Ill., McLeansboro—City, City Hall, 2 diesel engine generating sets for municipal electric plant, to Enterprise Engine & Foundry Co., 18 and Florida Sts., San Francisco Calif., **$159,975.** Awarded 3/14. S. J. Sibley & Assoc., 524½ E. Capitol St., Springfield, engrs.

Miss., State College—State Bldg. Comn., New Capitol Bldg., Jackson, general contract, library Campus of Mississippi State College, to J. A. Jones Constr. Co., 209 W. 4 St., Charlotte, N. C. **$598,700.** CD 2/16—ENR 2/24.

N. Y., Irondequoit—Town Superv., 1350 E. Ridge Rd., Rochester, town hall, to Friederich Sons Co., 710 Lake Ave., Rochester, Zone 13, **$378,225.** Bids 3/4. CD 2/24.

N. Y., Schenectady—Municipal Housing Auth., 402 Millard St., housing, Proj. NYS-34, East VanVracken Ave., to John A. Johnson & Sons, Inc., 270, 41 St., Brooklyn, Zone 32, **$1,654,000.** Bids 2/15. CD 3/14—ENR 3/17, under LB.

N. C., Greenville—Greenville Utilities Comn., J. H. Blount, chn., boiler and turbine rooms addn., alterations at municipal power plant, to Crain & Denbo, Durham, **$124,640.** Bids 3/15. CD 3/8—ENR 3/10.

●Pa., Phila. — Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, general contract, Bldg. N-9, Maximum Security Bldg. for male patients at Phila. (Byberry) State Hospital to Wark & Co., 1700 Sansom St., **$1,497,770.** Bids 3/9, awarded 3/22. CD 3/14—ENR 3/17.

Ont., Malton—Dominion Govt., c/o Canadian Commercial Corp., 70 Lyon St., Ottawa, 80x290 ft. concrete, steel, brick engine overhaul bldg., to A. W. Robertson Ltd., 57 W. Bloor St., Toronto. Approx. **$200,000.** D. Shepherd, 57 W. Bloor St., Toronto, engr.

Ont., St. Mary's—General Hospital Bd., L. P. Whaley, secy., 1 story, bsmnt. 40x210 ft., steel, brick, rein.-con. hospital, to Pameder Bros., 45 Cambria St., Stratford. Approx. **$350,000.** CD 7/9/47—ENR 7/24/47.

Que., Hull—Hull Tenement, Inc., 29 Montcalm St., 65 addnl. houses, Wrightville, own forces, Approx. **$450,000.**

COMMERCIAL BUILDINGS

BIDS ASKED

April 5

S. C., Rock Hill—First Baptist Church, c/o James B. Urquhart, archt., Palmetto Bldg., Columbia, church.

About April 10

O., Toledo—Bd. Trustees Robinwood Hospital, 2517 Robinwood St., 4 story, 45x131 ft. hospital addn., alterations. $450,000. Bellman, Gillett & Richards, 518 Jefferson St., archts. CD 1/6—ENR 1/13.

April 21

●Mass., Hyannis—Cape Cod Hospital, Hyannis, 2 and 3 story, bsmnt., brick, steel hospital addn., wing and enlargment of wing. Approx. $1,000,000. Plans deposit $50. James H. Ritchie & Assoc., 38 Newbury St., Boston, archts, CD 7/2/46—ENR 7/18/46.

April 22

●Tex., San Antonio—Texas National Hotel Assoc., c/o W. L. Moody, Jr., 2028 Market St., Galveston, 4 story, 125 room stone, steel Menger Hotel addn., air-conditioning. $1,000,000. Extended date. Atlee B. & Robert M. Ayres, Transit Tower, archts. CD 3/22—ENR 3/31.

Bids Asked

Ind., Indianapolis — Northwood Christian Church, 46 and Central Aves., 1 story, bsmnt., brick, concrete, steel church, 46 St. and Central Ave. $250,000. Plans deposit $25. Burns & James, 82 Architects & Builders Bldg., archts.

N. J., Paulsboro—Socony Vacuum Oil Co., Paulsboro, engineering administration office. $510,000. Robert C. Martin, 1700 Walnut St., Phila., archt. CD 1/31/46—ENR 2/14/46.

SOON LETS CONTRACT

Conn., Storrs—Hillee Foundation, c/o Ebbets Frid & Prentice, archts., 862 Asylum Ave., Hartford, soon lets contract 1 story, bsmnt., brick, cinder block synagogue, incl. offices, etc. Julius Berenson, 48 Forrest St., Hartford, assoc. archt.

Fla., Miami Beach—William F. Fisher, c/o B. Robert Swartburg, archt., 126 24 St., soon lets contract 165 room 12 story, penthouse hotel, Riley & Ross, 3047 Biscayne Blvd., Miami, engrs.

Ind., Anderson—Anderson Apartments, Inc., Anderson, soon lets contract 12 story, brick stores, offices and apartments conversion from hotel, $300,000. Plans deposit $25. Allen & Kelly, 435 Architects & Builders Bldg., Indianapolis, archts. CD 3/14—ENR 3/17.

Tex., Austin—Texas National Hotel Assn., c/o W. L. Moody, Jr., 2028 Market St., Galveston, soon lets contract 3 story Stephen F. Austin Hotel Addn. $450,000. Atlee B. & Robert M. Ayres, Transit Tower, San Antonio, archts. CD 3/22—ENR 3/31.

LOW BIDDERS

Idaho, Boise—St. Lukes Hospital, 1 and Bannock Sts., Mar. 22, 3 story hospital addn., from J. H. Wise & Sons, 424 Broadway, **$764,321.** Est. $600,000. CD 2/18—ENR 2/24.

Ky., Covington—St. Elizabeth Hospital, 21 St. and Eastern Ave., general contract 6 story, bsmnt., 40x200 ft., rein.-con., steel, brick nurses home, from H. W. Miller Constr. Co., 1511 Neave St., **$553,700.** Potter, Tyler, Martin & Roth, Reakirt Bldg., 128 E. 6 St., Cincinnati, O., archts.

CONTRACTS AWARDED

Ala., Mobile—Catholic Diocese, c/o contractor St. Catherine School and Rectory, to Reyton Higgison, 59½ St. Francis St., Mobile, Approx. **$250,000.** CD 2/11—ENR 2/24.

Calif., Belmont—Grant Homes, Inc., 1437 Webster St., Oakland, 24 residences, Kedith St., to W. Spivock, 1734 Webster St., Oakland. Approx. **$288,000.**

Calif., South San Francisco—Brentwood Co., 5401 Mission St., San Francisco, 43 residences in Brentwood Tract. Owner builds, **$276,000.**

Conn., Trumbull—Advanced Activities, Inc., R. J. Waller, pres., 430 Barnum Ave., Bridgeport, 40 shingle, concrete block single homes, Black Horse Rd. Owner builds, Approx. **$300,000.** CD 3/25.

Fla., Miami—S. & B. Construction Co., 224 Palermo Ave., Coral Gables, 41 homes in Flagler Grove Estates exten. Owner builds. **$250,000.**

Ga., Columbus—Victory Apartments, Inc., c/o James C. Wise, archt., 305 Techwood Dr., Atlanta, apartment development to Algernon Blair, 806 Henry Grady Bldg., Atlanta, Approx. **$500,000.** CD 2/28—ENR 3/10.

Ga., Macon—Mangham-Butler, Inc., Decatur, 100 homes, Brentwood and Cherry Aves., own forces. Approx. **$500,000.**

Ga., Savannah—Thomas C. Telmly Co., 7 Bull St., 34 homes in Abercorn Park Subdivision, separate contracts, Approx. **$250,000.**

Ill., Chicago—Owner, c/o Edward P. Lewin, archt., 134 N. LaSalle St., bowling alley, to C. W. Haynes Co., 135 S. LaSalle St., **$450,000.**

Mich., Detroit — St. Elizabeths Catholic Church, Canfield and McDougall Sts., 2 story, bsmnt., 88x160 ft., rein.-con. steel, recreation center, to W. E. Wood Co., 4649 Humbolt St. Walter Rozycki, 2268 E. Forest St., archt.

N. J., Margate—Albert Chanese, 421 N. Harrisburg Ave., Atlantic City, residential development, Argyle Ave. etc., separate contracts. Approx. **$250,000.** R. B. Williams, 8409 Ventnor Ave., archt.

●N. Y., New York—Home for Aged & Infirm Hebrews, 121 W. 105 St., Zone 25, home addn., Kingsbridge Rd., to Rheinstein Constr. Co., 21 E. 40 St., Zone 17, Approx. **$2,000,000.** CD 6/28 —ENR 7/1.

●O., Cincinnati—Colonial Village, Inc., Fred Walters, mgr., 1759 Eastlawn St., 161 two story, bsmnt. irregular dimensions, brick apartments, to Modern Constr. Co., 1759 Eastlawn Dr., **$1,500,000.** W. W. Cordes, 4935 Paddock Rd., archt.

Pa., Harleysville—Harleysville Automobile Mutual Co., Harleysville, insurance bldg., to George H. Evans & Co., 1914 Spring Garden St., Phila., **$611,000.** Charles M. Talley, Telford, archt.

Pa., Morton—Our Lady of Perpetual Help, Franklin Ave. and Amosland Rd., school, to John P. Donovan, Inc., Lewis Tower Bldg., Phila., **$250,000.** Frank A. Ricker & Louis A. Axt Assoc., 1615 Hudson Ave., West New York, N. J., archts.

Pa., Phila.—Samuel Sukerman, 6360 Germantown Ave., residential development, Forrest Ave., separate contracts. Approx. **$250,000.** Christian Fries, 3701 N. Broad St., archt.

Pa., Phila.—Vance Constr. Co., 441 W. Cheltenham Ave., Melrose Park, residential development, Robbins Ave., to Kerr & Williams, 441 Cheltenham Ave., Melrose Park, **$260,000.**

●Pa., Pottstown—Allen K. Davidheiser, 232 Prospect St., residential development, Adams, Mervine and Warren Sts., separate contracts. **$1,500,000.**

R. I., Providence—United Public Markets, Inc., 60 Dexter St., Pawtucket, 1 story, bsmnt. brick, cinder block business bldg., to E. Turgeon, 614 Turks Head Bldg., Approx. **$275,000.** CD 3/24.

Tenn., Chattanooga—Owner, c/o Hunt, Caton & Assoc., archts., James Bldg., remodeling mfg. plant into office bldg., to John Martin Co., 1851 Central Ave. Approx. **$250,000.** CD 2/21—ENR 3/3.

Tex., Galveston—Bay Shore Corp., c/o Reynolds & McCleary, archts., 2815 Times Bldg., Houston, nine 2 story frame, brick apartments, concrete slab fdns., to W. R. Reid, c/o archts. **$375,000.** CD 10/22—ENR 11/4.

Tex., Houston—A. & H. Farb, c/o Irving R. Klein, archt., Bankers Mortgage Bldg., motor hotel units, own forces. **$375,000.** CD 10/29/47—ENR 11/13/47.

Tex., Houston—Francis Mc Clain and Safeguard Life Insurance Co., c/o H. C. Pope, 618 Prairie St., 68 dwellings, day labor. Approx. **$350,000.** E. S. & Robert M. Atkinson, 1st. Natl. Bank Bldg., engrs.

●Tex., Houston — Martin Nadelman, 5305 Blythewood St., 270 dwellings, vicinity of Old Spanish Trail Rd. Theater, own forces. **$1,750,000.** CD 3/16.

●Tex., Houston—Southern Builders, c/o S. Hogan, 1200 Givens St., completing housing in Greenway Park addn., own forces. **$2,925,000.** CD 2/18/47—ENR 3/6/47.

Tex., Houston—Southern Village, c/o C. D. Knight & Assoc., 503 W. Alabama St., 42 residences, 7600 block El Rancho St. Owner builds. **$275,000.** CD 3/16.

Tex., Houston—United Home Builders, Inc., c/o Tom Edmonds & S. F. Henry, 10,000 Humble Rd., 50 dwellings in Parkwood Estates. Owner builds. **$275,000.** CD 12/10—ENR 12/23.

Ont., Cobourg—Cobourg Lumber Co., Ltd., 14 Barnham St., 50 dwellings, Owner builds. Approx. **$400,000.** CD 12/6—ENR 12/16.

Ont., Smith's Falls—Theatre Holding Corp., 72 Carlton St., Toronto, 2 story, 75x150 ft., concrete, theatre, to Hill, Clark, Francis Ltd., 7 Whitewood Ave., New Liskeard, Approx. **$250,000.** H. G. Duerr, Lumsden Bldg., Toronto, archt.

Que., Montreal—Paul Craig Ltd., 220 Markham Rd., concrete, brick apartment, Ridgevale Ave. Owner builds, Approx. **$250,000.** CD 11/17—ENR 11/25.

INDUSTRIAL BUILDINGS

BIDS ASKED

April 7

Ala., Cullman—WAREHOUSE, etc.—Cullman Electric Co-operative, Cullman, warehouse and office. Plans deposit $25. Howard A. Griffith, Jr., State Natl. Bank Bldg., Sheffield, archt.

April 8

Va., Richmond — PLANT — The Hinde & Dauch Paper Co., c/o Carneal & Johnston, archts., 1000 Atlantic Life Bldg., 313x428 ft., factory, stock storage, shipping platform; 2 story, 42x42 ft. offices separate power house, incl. radial brick stack, structural steel framing, air-conditioning, etc. $200,000.

April 12

Fla., Jay — WAREHOUSE, etc. — Escambia River Electric Co-operative, Jay, warehouse and office. Plans deposit $25. Southern Eng. Co., 699 Spring St. N.W., Atlanta, Ga., archts.

Bids Asked

Tex., San Antonio—SERVICE STATIONS—Sinclair Refining Co., c/o B. D. Dixon, 1305 S. Laredo St., service station, near St. Louis Browns Baseball Park, Roosevelt and Mitchel Sts. $80,000; super service station, W. Commerce and Zarzamora Sts. $75,000, masonry, steel, concrete constr. CD 10/24/46—ENR 11/7/46.

SOON LETS CONTRACT

Ala., Birmingham—PLANT—Standard Casket Mfg. Co., c/o Miller, Martin & Lewis, archts., Title Guarantee Bldg., soon lets contract casket mfg. plant. CD 3/4—ENR 3/10.

Ala., Montgomery—STOCK YARD FACILITIES—Union Stock Yards Co., c/o John M Morton, engr., 412 Shepard Bldg., soon lets contract addnl. stock yard facilities.

N. J., Boundbrook — PLANT — Research Corp., Boundbrook, soon lets contract 1 story, 240x400 ft., steel plant. Giffels & Vallet, 1000 Marquette Bldg., Detroit, Mich., engrs. and archts. CD 12/15—ENR 12/30.

Que., Sherbrooke — PLANT — Dr. Reinhard, c/o Quebec Rayon Mills, Ltd., 93 Frontenac St., soon lets contract 1 story, 100x225 ft., concrete, steel, brick plant, 10 Ave. Approx. $250,000. A. Belonger, 128 Queen Blvd., archt. **McPherson Co., Greenville, S. C., U. S. A.,** engr. CD 12/30/48—ENR 1/20/49.

LOW BIDDERS

Ala., Guin—WAREHOUSE, etc.—Tombigbee Electric Co-operative, Guin, rejected bids Mar. 17, warehouse and office. CD 3/8—ENR 3/10.

Calif., San Bernardino—PLANT—Barbara Ann Baking Co., 1877 Massachusetts Ave., Mar. 15, 1 and part 2 story plant addn., from E. F. Wapshall, N. Arroyo Parkway, Pasadena, **$208,000.** CD 2/10—ENR 2/17.

CONTRACTS AWARDED

Ala., Selma—MILL, etc.—Blackbelt Elevator & Feed Co., Selma, design and construction feed mill and grain elevator, to Rust Eng. Co., Exchange Bldg., Birmingham. Approx. **$250,000.**

Calif., Beverly Hills—WAREHOUSE — Beverly Hills Development Co., 145 S. Rodeo Dr., 1 story, 95,000 sq. ft. steel frame, reinforced brick warehouse. Owner builds. **$400,000.** Harold Roach, 4285 Huntington Dr., Los Angeles, engr.

Calif., Richmond — WAREHOUSE — Parr-Richmond Terminal Corp., foot of 10 St., 80x376 ft. steel warehouse at Terminal 3, to W. C. Tait Co., 461 Market St., San Francisco. Approx. **$96,000.** J. J. Walsh, 112 Market St., San Francisco, engr.

Calif., Sanger—PLANT—Sanger Ice & Cold Storage Co., 1119 11 St., 70x150 ft. cold storage plant addn., to Associated Refrigerating Engineers, 2100 E. Vernon Ave., Los Angeles, Approx. **$80,000.**

Conn., Hartford — GAS PLANT — Hartford Gas Co., 233 Pearl St., 3 unit concrete, steel gas plant, incl. erecting gas condensers, Cottrell precipitators and sub-station, Front St., to United Engineers & Constructors, Chestnut St., Phila., Pa., Approx. **$130,000.** CD 3/11—ENR 3/24.

●**Del., Edge Moor**—PLANT—Delaware Power & Light Co., Edge Moor, design and construction plant, to United Engineers & Constructors, Inc., 1401 Arch St., Phila., Pa., Approx. **$26,000,000.** G. Morris Whiteside, duPont Bldg., Wilmington, archt.

Fla., Miami—PLANT—Master Freezer, Inc., c/o contractor, cold storage plant, to Witters Constr. Co., 1454 N. W. 17 Ave., Approx. **$400,000.** (**Correction**—contractor). CD 6/24/48—ENR 7/1/48, under CA.

Ill., Marseilles—FACTORY—National Biscuit Co., 1018 W. Washington Bldg., 1 story, steel, concrete paper carton factory, to Wm. Koenig Co., 228 N. LaSalle St., Chicago, **$275,000.** Awarded 3/14. Mundie, Jensen & McClurg, 39 S. LaSalle St., Chicago, archts.

Ind., Columbus—FACTORY—Cummins Engine Co., (Diesel Engines) 5 and Wilson Sts., 1 story, 80x161 ft., concrete, steel, factory addn., 6 and Wilson Sts., to The Austin Co., 16112 Euclid Ave., Approx. **$100,000.** Wm. Dyer, 16112 Euclid Ave., archt.

Kan., Kansas City—WAREHOUSE—Atchison, Topeka & Santa Fe Ry. Co., F. D. Kinnie, ch. engr., General Office Bldg., Topeka, warehouse and freight bldg., hump yard, west of here, to Collins Constr. Co., 15 W. 10 St., Kansas City, Kan., **$125,000.** CD 9/11/46—ENR 10/3/46.

Mich., Detroit — WAREHOUSE — Evening News Assn., 615 Lafayette St., 1 story, steel marine warehouse, to Darin & Armstrong, 2041 Fenkell St. CD 2/21—ENR 3/3.

Minn., Minneapolis—WAREHOUSE—Minneapolis-Moline Co., 3200 Como Ave. S. E., general contract warehouse addn. to factory, to E. M. Ganley Co., 2922 Oakland Ave., **$120,000.** CD 3/17—ENR 3/24, under CA.

Minn., Minneapolis — WAREHOUSE — Alexander Smith & Sons Carpet Co., Saw Mill River Rd., Yonkers, N. Y., 1 story, 171x210 ft. steel, brick, stone warehouse, University and 27 Aves., to Turner Constr. Co., 105 W. Adams St., Chicago 3, Ill. **$400,000.** A. Epstein & Sons, Inc., 2011 W. Pershing Rd., Chicago, Ill., archt.

Mo., St. Louis—TERMINAL—Tot Realty Co., c/o Charles H. Potter, Estes Ave., Nashville, Tenn., 1 and 2 story, 50x150 ft., brick, concrete truck terminal, 200 N. 14 St., to Henry A. Henske, 4497 Pershing Ave., Zone 8. Martin H. Blufston, 3707 Lindell Blvd., Zone 8, engr.

Mo., St. Louis — SALES and SERVICE — Tucker Motor Co., 3415 S. Grand Ave., Zone 18, 1 story, 42x75 ft., brick, concrete sales and service bldg. addn., 3415-19 S. Grand Blvd., to G. J. Grady Constr. Co., 817 Chestnut St., Zone 1. Wood & Meyer, 817 Chestnut St., Zone 1, archts.

N. J., Camden—FACTORY—Warren-Webster Co., 17 and Federal Sts., 2 story, 72x117 ft., brick factory addn., to Ertel Constr. Co., 505 Market St., **$150,000.** CD 2/25—ENR 3/3, under LB.

N. Y., New York — GARAGE — Post Office Garage, Inc., 580 Fifth Ave., Zone 19, 4 story garage and office, 225-29 E. 43 St., to be occupied by Texas Co., separate contracts. Approx. **$500,000.** CD 1/19—ENR 2/3.

N. C., West Durham—APPARATUS ROOMS—Erwin Cotton Mills Co., West Durham, constructing apparatus rooms for air-conditioning equip. at Plants 1 and 4, to Wm. Muirhead Constr. Co., Box 2021, Durham, Approx. **$100,000.** Lockwood Greene Engineers, Inc., Spartanburg, S. C., archts. and engrs. on air-conditioning installations at above plants.

Pa., Norristown — FACTORY — Wildman & Swartz, Inc., 1006 Washington St., 1 story, 60x90 ft. masonry factory, to Frank R. Heavner, Montgomery Trust Arcade, E. Main St., **$70,000.** Harry Gordon McMurtrie, Airy and Stanbridge Sts., archt.

Pa., Pittsburgh—WAREHOUSE—Chatfield & Woods Co., 32 Blvd. of Allies, Pittsburgh, 1 and 2 story, 240x240 ft., brick, tile, steel warehouse, to Frank Messer & Sons, Inc., 4612 Paddock Rd., Cincinnati, O. Approx. **$500,000.** Bids 2/14. CD 2/9.

Tex., Dallas—PLANT—Chase Brass & Copper Co., Inc., 3210 Blackburn St., plant on Pittsburg St., to Horne Constr. Co., Republic Bank Bldg. $75,000. Frank J. Woerner & Co., 1008 Stonewall St., archts.

Tex., San Benito—POWER PLANT—Central Power & Light Co., 120 N. Chaparral St., Corpus Christi, addnl. enlargement La Palma Electric Power Plant, own forces. **$200,000.** CD 2/28/47—ENR 3/20/47.

UNCLASSIFIED

BIDS ASKED

April 5

Pa., Phila.—SWIMMING POOL — Dpt. P. Welfare, City Hall Annex, swimming pool and shelter bldg., 3 St. and Fairmount Ave. Approx. $50,000. Davis, Dunlap & Carver, Sanson St., archts. CD 2/12/47—ENR 3/3/47.

April 8

†**Oregon**—TRANSMISSION LINES—Bonneville Power Admin., 729 N. E. Oregon St., Portland, Zone 8, clearing 17 mi. right-of-way and constructing Albany-Lebanon 115 kv transmission line, Inv. 4543, Linn Co. Plans deposit $25.

April 11

N. J., Port Newark—DOCK—At office Chief Engr., Port of New York Auth., 111 Eighth Ave., New York 11, N. Y., reconstructing dock on north side of city channel, Contr. PN-2. Plans deposit $25.

April 14

Fla., Pensacola—PIER—City waterfront pier. CD 10/8/46—ENR 10/31/46.

April 15

Kentucky—RURAL DISTRIBUTION LINES—Southern Kentucky Rural Electrification Corp., Somerset, rural distr. lines, sys. imprvs., Wayne Co. $790,000. CD 1/9/46—ENR 1/24/46.

La., Jennings—SWIMMING POOL, etc.—City, City Hall, swimming pool and bath house. $100,000. Barnard & Burk, Triad Bldg., Baton Rouge, engrs. CD 8/21/47—ENR 9/4/47.

†**Va., Quantico**—PIER—Pub. Wks. Office, Bldg 3035, Marine Corps Schools, repairing pier and breakwater at Marine Corps Schools, Spec. 20780. Plans deposit $5.

April 19

Georgia—RURAL DISTRIBUTION LINES—Lamar Electric Membership Corp., Barnesville, 135.33 mi. rural distr. lines, Lamar, Bibb Crawford, Meriwether, Monroe, Pike, Spaulding and Upson Counties. Plans deposit $25. P. B. McCrary Eng. Co., 22 Marietta St. Bldg., Atlanta, engr. CD 12/27/48—ENR 1/20/49.

About April 21

†**N. M., Albuquerque**—BASEBALL FIELD—U. S. Eng., P. O. Box 1538, baseball field (EOP-938), Serial No. 29-005-49-71.

April 21

†**N. C., New Bern**—CEMETERY—U. S. Eng., Post Office Bldg., Savannah, Ga., addnl. facilities at New Bern National Cemetery, Serial No. Eng-09-133-49-165. CD 3/7—ENR 3/24.

April 26

†**New York**—PIER—U. S. Eng., Engineer Park, Buffalo, Zone 7, repairing east pier, Olcott Harbor, Serial No. Eng-30-023-49-47.

Tex., Amarillo—STADIUM—Amarillo Independent School Dist., Amarillo, 15,000 seat stadium. $250,000. Grayson Gill, 1913 San Jacinto St., Dallas, archts. CD 1/26—ENR 2/17.

†**Wyoming**—PENSTOCKS, etc.—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point, or f.o.b. cars Emery siding and Boysen, penstock and outlet pipe assembly; one 57 in. outlet pipe incl. bends, branch, expansion joints, supports, stiffener rings, flanges, manholes, outlet nozzles, piezometer connections, grout openings, surge tank tees, etc., for Boysen Power Plant, Boysen Unit, Missouri River Basin Proj., Spec. 2621.

April 28

†**South Dakota** — TRASHRACKS — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point, or f.o.b. cars Lemmon, 4 trashracks for Shadehill Dam, Grand River Unit, Missouri River Basin Proj., Spec. 2625.

May 1

Mississippi — RURAL DISTRIBUTION LINES—Southwest Mississippi Electric Power Associates, Port Gibson, 300 mi. rural distr. line, Claibourne Co. CD 2/28—ENR 3/10.

May 3

†**South Dakota and Nebraska**—TRANSMISSION LINE—Bureau Reclamation, Dept. Interior, 504 Conroy Bldg., Casper, Fort Randall-O'Neill 115 kv transmission line, Transmission Lines Unit, between Fort Randall, S. D. and O'Neill, Neb., Missouri River Basin Proj., Spec. 2618. CD 3/22—ENR 3/31, under LB.

†**Washington**—TRANSFORMER, etc.—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point f.o.b. cars Yakima, outdoor power transformer; grounded-neutral circuit; ungrounded-neutral circuit mounted on the tank; outdoor power circuit breakers; outdoor disconnecting switches; outdoor horn-gap switches; outdoor current transformers; outdoor potential transformers, for line-to-line connection for Roza Switchyard, Roza Div. Yakima Proj., Spec. 2619.

May 20

Ont., St. Thomas—ARENA—St. Thomas and Elgin Memorial Assn., 571 Talbot St., 120 x 235 ft. arena. Approx. $250,000. V. J. Blackwell & Assoc., 284 Dundas St., London, archts. CD 3/5/47—ENR 3/2/47.

June 22

†**California** — TRANSFORMERS — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., outdoor current transformers, for Davis No. 1 line at Parker 230-kilovolt switchyard, Davis Dam Proj., Spec. 2241. L. N. McClellan, ch. engr.

LOW BIDDERS

Ky., Lexington — STADIUM — University of Kentucky, Lexington, Mar. 21, McLean Stadium exten., Stoll Field, University of Kentucky, from Perkins Constr. Co., Frankfort, **$302,010.** CD 2/28—ENR 3/10.

Pa., Phila.—RECREATION CENTERS—Dpt. P. Welfare, City Hall Annex, grading, surf., fencing and curbing recreation centers, Summerdale Ave., Levick and Frontenac St., from James D. Morrissey, Inc., 9119 Frankford Ave., **$73,579*****Crawford and Krail Sts. and Indian Queen Lane; also Richmond and Westmoreland Sts. and Allegheny Ave. from Felix Clauss & Sons, 4400 N. D. St., **$109,444** and $76,288 respectively. Jack S. Steele Co., 1416 Chestnut St., mgr. CD 2/12/47—ENR 3/3/47.

Tex., Mission — STADIUM — Mission Independent School Dist., Mission, rein.-con. steel, heavy timber stadium, from J. W. Crawford Constr. Co., McAllen, **$157,080.** R. C. Rippstein, 2302 Transit Tower, San Antonio, archt.

CONTRACTS AWARDED

Ark., Springdale—DRIVE-IN THEATRE—Bob Fellers, Neosho, Mo., 535 car drive-in motion picture theatre, incl. screen structure, projection tower, concession stand, walks, drives, ramps, in-a-car speakers, lighting and drainage facilities, etc. on site 3 mi. north of here. Owner builds. **$100,000.**

Calif., Long Beach—BLEACHER BLDG—City Bd. Educ., 715 Locust Ave., general contract bleacher bldg., to Millie & Severson, 1485 Canal Ave., Long Beach, Zone 3, **$80,315.** Bids 3/10, awarded 3/14.

Conn., Middletown — ATHLETIC FIELD, etc.— City, P. Wks. Dpt., City Hall, municipal athletic field, 2 playing fields, drainage, etc., Russell St. and Farm Hill Rd., to A. Brazos & Sons, Inc., 56 Oak St. Approx. **$60,000.** Bids 3/16.

Ind., Crawfordsville — DRIVE-IN-THEATRE—Local Syndicate, c/o Roberts Motor Sales Co., Crawfordsville, drive-in theatre, 20 acre plot fronting State Rd., 24 mi. east of here, to Mitchell Constr. Co., Crawfordsville. Approx. **$100,000.**

Ind., Seymour—DRIVE-IN THEATRE—Star Dust Theatres, Inc., c/o C. W. Massy, State Theatre, Worthington, drive-in theatre, 12 acre site near junction of Rts. 31 and 50, near here, separate contracts. Approx. **$100,000.**

La., Bogalusa—FIRE ALARM SYSTEM—City, City Hall, fire alarm sys., to Gamewell Co., Newton Upper Falls, Mass. **$50,683.** Bids 3/15. CD 2/28—ENR 3/3.

South Dakota — RURAL DISTRIBUTION LINES—Codington-Clark Electric Co-operative, Watertown, rural distr. lines, Codington Co., to Delta Constr. Co., Clarksdale, Miss., **$559,405.** Scott Eng. Co., Watertown, engr. CD 9/9/47—ENR 9/18/47.

Tex., Tom Ball—GAS SYSTEM—Humble Oil & Refining Co., Humble Bldg., Houston, natural gas sys. expans. Purchase and Hire. **$275,000.** CD 5/12/48—ENR 6/10/48.

Alta., Banff—PARK IMPRVS.—Dominion Gvt., Dpt. Mines & Resources, Ottawa, Ont., park and campgrounds imprv., own forces, Approx. **$50,000.** CD 9/5/46—ENR 9/19/46.

B. C., Kootenay Park—PARK IMPRVS.—Dominion Govt., Dpt. Mines & Resources, Ottawa, Ont., swimming pool and park imprvs., Kootenay Mountain Park, Radium Hot Springs, day labor. Approx. **$150,000.**

B. C., Prince George—LIGHTING SYSTEM—Municipality, c/o Wm. G. Fraser, clk., Prince George electric light and distr. sys. extens., own forces. **$50,000.**

PROPOSED PROJECTS

PUBLIC BUILDINGS

Ala., Cullman—City, plans by Van Keuren, Davis & Co., American Life Bldg., Birmingham, school. **$250,000.**

Ark., Dumas—Desha Co., c/o judge J. L. Erwin, McGehee, voted bonds Mar. 8, hospital, **$300,000.** CD 2/21.

●**Ark., Little Rock**—State of Arkansas, Little Rock, medical center. **$6,200,000.**

Ark., Little Rock — State Dpt. Labor, State Capitol, labor dpt. office, **$300,000.**

Ark., Little Rock — State Welfare Dpt., Clover Bldg., welfare dpt. office, **$750,000.**

Ark., Pocahontas—Randolph Co., Pocahontas, plans by Bruce R. Anderson, Wallace Bldg., Little Rock, hospital. **$300,000.**

Ark., Wynne—Cross Co., Wynne, plans by Wittenberg, Delony & Davidson, Pyramid Bldg., Little Rock, hospital. **$300,000.**

Calif., Long Beach—City Bd. Educ., 715 Locust Ave., plans by Warren Dedrick, 132 W. Ocean Blvd., frame, stucco John Burroughs School. **$349,000.** CD 11/18—ENR 12/9.

●**Calif., Los Angeles**—Bd. Regents University of California, 451 Hilgard Ave., plans by Weisley & Gould, 2502 W. 3 St., Los Angeles, law school. **$1,500,000.**

●**Calif., San Francisco**—Bd. Regents University of California, Berkeley, plans by Blanchard & Maher, 360 Pine St., San Francisco, medical science bldgs. at University of California Medical Center, **$10,350,000;** plans by Milton Pflueger, 580 Market St., San Francisco, 12 story, 29,000 sq. ft. cross-shaped 400-bed hospital on San Francisco Campus of University of California, **$9,500,000.** CD 8/24/44—ENR 9/7/44.

Colo., Aurora — Aurora School Bd., Foster B. Putney, secy., 9735 E. Colfax St., plans by by Atchison & Kloverstrom, 1254 Monaco Parkway, Denver, 2 story brick high school, **$325,000.**

Conn., Cheshire — Town, Bd. Selectmen, Town Hall, brick, steel elementary school, **$260,000.**

†**Conn., Elmwood**—Pub. Bldgs. Admin., Federal Works Bldg., F St. between 18 and 19 St. N. W., Wash. 25, D. C.:, brick post office. **$200,000. FWA.**

Conn., Lebanon—Town Bd. Selectmen, Town Hall, brick, steel school addn. **$250,000.**

●**Conn., Meriden** — Housing Authority, Meriden, plans by William F. R. Ballard, rental housing project. **$1,100,000.**

Conn., Norwich — City, Norwich Housing Sut., Irving Spiro, chn., plans by Chandler & Palmer, 16 Franklin St., 50 frame family units Asylum St. and Warren Ave., **$630,000.**

Conn., Thompson — Town, J. J. Tyscavage, Supt. of Schools, Thompson, brick elementary school, **$250,000.**

Conn., Wallingford — Boro of Wallingford Housing Auth., Wallington, plans by C. R. Blanchard Jr., 85 Whitney Ave., New Haven and C. W. Bailey, 152 N. Main St., 56 frame dwelling units, **$550,000.**

†**Conn., West Hartford**—Pub. Bldgs. Admin., Federal Works Bldg., F Ave. between 18 and 19 Sts. N. W., Wash. 25, D. C., brick, steel post office, **$350,000. FWA.**

●**Ga., Atlanta**—State Dpt. Pub. Welfare, State Office Bldg., screening hospital for mentally ill. Over **$1,000,000.**

Idaho, Weiser—City of Weiser Co. of Washington, plans by Wayland & Fennell, Idaho Bldg., Boise, hospital. **$456,000.** CD 12/15—ENR 1/20.

Ill., Chicago — State of Illinois, Armory Bldg., Springfield, plans by C. Herrick Hammond, 53 W. Jackson Bldg., Chicago state archt., Washington Park armory alterations, **$275,000.** CD 7/10/41—ENR 7/17/41.

Ill., Highwood—Lake Co. School Dist. 111, plans by Ganster & Henninghausen, Waukegan, concrete, brick school addns. **$250,000.**

Ind., Indianapolis—Bd. School Comrs., V. M. Bailey, bus. dir., 150 N. Meridian St., plans by Burns & James, 824 Architects & Builders Bldg., 2 story, brick, stone, rein.-con. steel School 24. **$300,000.**

Ill., Sycamore—Bd. Educ., Dist. 51, Sycamore, school. **$200,000.**

Ind., Fort Wayne—Bd. School Trustees, Fort Wayne, plans by Fred Pohlmeyer, 262 Central Bldg., 2 story, bsmnt., brick school, McKinnie Ave. and Smith St. **$450,000.**

Ind., Indianapolis—Bd. School Comrs., V. M. Bailey, bus. dir., 150 N. Meridian St., 2 story, brick School No. 34, 1410 Wade St. **$300,000.**

Kan., Emporia — Newman Memorial Co. Hospital, Emporia, plans by Brinkman & Hagan, Emporia, hospital. **$250,000.** CD 11/29/46.

Kan., Eudora—Rural High School Dist. 28, Eudora, plans by Keys, Heizer & Metcalf, 501 Jackson St., Topeka, high school and grade school addn. **$343,000.**

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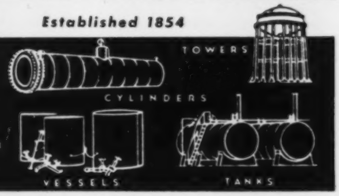

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Kan., Liberal—Bd. Educ., Liberal, high school addn., incl. auditorium and gymnasium, **$350,000.**

Kan., Olathe—Olathe Hospital Foundation, Olathe, hospital, **$350,000.**

●**Kan., Wichita**—City, C. C. Ellis, clk., City Hall, **$5,000,000** bond election Apr. 5, brick, steel, concrete, stone municipal auditorium. CD 7/17/46—ENR 8/8/46.

●**La., Lake Charles** — Calcasieu Parish Police Jury, Lake Charles, plans by Dunn & Quinn, Lake Charles, courthouse and jail, **$2,220,000-$2,500,000.** CD 4/30—ENR 5/13.

●**Mass., Boston**—City of Boston Housing Auth., 10 Post Office Square, plans by Robert W. Blaisdell, 17 Proctor St., Roxbury, 200 unit veterans housing, Hyde Park, **$2,000,000.**

Mass., Braintree—Town, Housing Authority, Town Hall, plans by Christopher C. Crowell, 120 Atwood Ave., Newton, 90 units, veterans housing proj., **$898,530.** CD 10/28—ENR 11/11.

Mass., Braintree—Town, Mr. Proctor, supt. schools, Braintree, plans by Adden, Parker, Clinch & Crimp, 177 State St., Boston, Hollis elementary school alterations and addns., Over **$250,000;** Lincoln elementary school alterations and addns., Over **$250,000.**

Mass., Brookline—Town, School Dpt., Town Hall, Devotion School extens., Over **$250,000;** Edith C. Baker School addn., Beverly Rd., Over **$250,000;** elementary school, adjacent to Eliot Playground, Over **$250,000.**

●**Mass., Chelsea**—City of Chelsea Housing Auth., Chelsea, plans by Hugh A. Stubbins Jr., 103 Pleasant St., Lexington, 130 unit veterans housing Revere Beach Parkway. Approx. **$1,250,000.** CD 2/10—ENR 3/3.

Mass., Hyannis—Barnstable Housing Authorits, Daniel J. Fern, chn., 354 Main St., Hyannis, plans by John Barnard, Richard E. Galligher, Walter M. Gaffney & Millway, Barnstable, 40 unit veterans housing proj., **$400,000.**

Mass., Lawrence—Essex Co. Commrs. Office, Court House, Salem, district court house, **$500,000.**

Mass., Lynn—City, School Dpt., Administration Bldg., 42 Franklin St., plans by Lipinski & Valtz, 113 Market St., school, Gorner Regina Rd. Over **$250,000.** CD 10/28—ENR 11/11.

Mass., New Bedford—City, Wm. K. Burke, supt. Schools, 166 Williams St., brick, steel Williams School addn., Allyn St. **$250,000.**

Mass., Newburyport—City, Housing Authority, Leon M. Plumber vice chn., Newburyport, plans by Drummey & Dufill Inc., 80 Boylston St., Boston, 39 unit veterans housing proj., Mosley Ave., **$390,000.** CD 1/13—ENR 2/3.

Mass., Northampton—City of Northampton Housing Auth., Northampton, plans by James A. Britton, 20 Federal St., Greenfield, Part II, 80 unit veterans housing, Pollard site **$850,000.** CD 11/11—ENR 11/25.

Mass., Somerset — Town, A. J. O'Toole, supt. Schools, Town Hall, brick, steel high school addn., **$300,000.**

Minn., Benson—Bd. Educ., F. E. Kearney, clk., plans by H. H. Swanson, 446 Sexton Bldg., Minneapolis, 3 story, 42x80 ft. and 3 story 63x100 ft. school addns., **$300,000.**

Minn., Moorhead—Bd. Educ., S. G. Reinersten, supt., Moorhead, voted $1,090,000 bonds, 3 schools, **$250,000** each. Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, archts. CD 10/1—ENR 10/28.

●**Miss., Greenwood** — Greenwood Separate School Dist., Greenwood, voted **$1,250,000** bonds, school imprvs. CD 2/11.

Mo., Marshall—City, City Hall, plans by Gentry & Voskamp, 4 W. 13 St., Kansas City, civic auditorium, **$630,000.**

Mont., Butte—Silver Bow Co., Butte, plans by J. G. Link & Co., Butte, civic center. **$995,000.** CD 12/16—ENR 1/20.

●**Neb., Lincoln**—City, $1,500,000 bond election in May, city auditorium. **$2,400,000.** D. L. Erickson, city engr. CD 1/19—ENR 2/3.

O., Bellefontaine—City, Bellefontaine, water cooling tower, steam boiler generator and 12,000 kw hour turbine generator power plant. F. M. Baxley, chief utilities engr.

O., Bowling Green—Bd. Educ., c/o Dr. L. C. Curry, Bowling Green, plans by Lester Route, Vincennes, Ind., 1 story, bsmnt., brick high school, **$300,000.**

●**O., Columbus** — Franklin Co. Courthouse, plans by Ralph C. Kempton, 50 W. Broad St., Franklin County Veterans Memorial. **$4,500,000.**

O., Delaware — Bd. Educ., Delaware, plans by Pettit, Oman, Meinhard & Cleland, 2901 N. High St., Columbus, North and South elementary schools. **$500,000.** CD 11/11—ENR 12/9.

O., Springfield — Bd. Educ., Springfield, plans by Ralph H. Harman, 133 W High St., 1 story brick, concrete, steel Lagonda elementary school. **$600,000;** Schaeffer Junior High addn., remodeling present bldg. **$650,000.** CD 3/12/46—ENR 6/13/46.

●**Okla., Oklahoma City**—Bd. Educ., 400 N. Walnut St., bond election April 5, school expansion. **$3,000,000.** Hudgins, Thompson & Ball, 1100 W. Main St., archts. CD 12/12/45—ENR 2/14/46

R. I., Bristol—Town, J. F. Xavier, secy., Vets. Comm., 615 Wood St., brick memorial bldg. for veterans. **$250,000.**

●**R. I., Cranston**—City, C. W. Bosworth, supt. Schools, Park Ave., Garden City School, **$250,000;** West Arlington School, **$250,000;** Meshanicut School, **$250,000;** 2 story Oaklawn School, **$250,000;** 2 story, bsmnt. Junior High School, Park View Blvd., **$800,000,** all brick, steel constr.

S. D., Pierre—State, Pierre, plans by Harold Spitznagel & J. A. Schoening, 816 Natl. Bank of South Dakota Bldg., Sioux Falls. State Office Bldg. **$295,000.** CD 2/2/45—ENR 2/22/45.

●**S. D., Rapid City**—State of South Dakota, Pierre, plans by D. W. Loucks, Pierre, state cement plant. **$1,500,000.**

S. D., Vermillion—State of South Dakota, Pierre, medical and science bldg. at University of South Dakota. **$600,000.** D. W. Loucks, state engr. CD 3/3/44—ENR 3/23/44.

S. D., Yankton—State of South Dakota, Pierre, new bldg. at State Hospital for Insane. **$400,000.** D. W. Loucks, state engr. CD 1/22/46.

Tenn., Clinton—Anderson Co., S. F. Owens, supt., Clinton, high school. **$350,000.**

●†**Tex., Amarillo** — Veterans Admin., Vermont Ave. between H and I Sts. N.W. Wash. 25, D. C., 350 bed Veterans hospital addn. **$4,500,000.**

Tex., Big Spring—Howard Co. J. E. Brown, judge, Courthouse, plans by Puckett & French, 505 Petroleum Bldg., Junior College. **$350,000.** CD 11/28/45—ENR 1/3/46.

Tex., Borger—City, Fred C. Herbst, mayor, voted $150,000 bonds Mar. 12 school. **$250,000.**

Tex., Dallas — Dallas Independent School Dist., Akard and Royal Sts., plans by Mark Lemmon, Tower Petroleum Bldg., masonry Forest Ave. School Addn. **$450,000.** Wyatt C. Hedrick, 904 Fort Worth Ave., designing archt. CD 12/13/45.

Tex., El Paso—College of Mines, W. Kerbey Administration Bldg., plans by Percy McGee, 1st. Natl. Bank Bldg., masonry, auditorium and science. **$800,000.** CD 2/11—ENR 3/3.

Tex., Falfurrias—Brooks County Independent School Dist., Falfurrias, plans by Robert L. Vogler, 225 Oleander St., masonry, steel, brick and ledge stone exterior, marble wainscot high school, air-conditioning. **$650,000.** CD 11/18—ENR 12/23.

Tex., Fort Worth — Fort Worth Independent School Dist., 409 E. Weatherford St., plans by Herman G. Cox, Neil P. Anderson Bldg., 42,200 sq. ft. masonry Lake Como School addn, concrete slab fdn. **$300,000.**

Tex., Helotes—Bexar County Common School Dist., c/o Clyde Smith, 1411 Highland Ave., San Antonio, $225,000 bond election March 26, high school Precinct 2. **$300,000.** Fred Buenz, 1517 Majestic Bldg., San Antonio, consult. archt. CD 2/4—ENR 3/3.

●**Tex., Houston**—University of Houston, 705 Fannin St. (Texas Medical Center, sponsors), plans by Alfred C. Finn, Bankers Mortgage Bldg., pharmacy college, **$1,000,000;** school of nursing. **$500,000.**

Tex., Kermit — Kermit Independent School Dist., Kermit, voted bonds Feb. 5, masonry, concrete, steel high school. **$900,000;** elementary school and addns. **$310,000.** Hughes & Olds, 158½ Cypress St., Abilene, archts. CD 10/11.

●**Tex., Port Neches** — Port Neches Independent School Dist., Port Neches, bond election May 10, high school. **$1,358,900.** Herbert Voelcker & Assoc., 2801 San Jacinto St., Houton, consult. archts. CD 9/28/46—ENR 10/17/46.

Tex., Tyler—City, J. G. Rollins, mayor, municipal multi-story auto parking. **$350,000.**

Va., Farmville—Farmville State Teachers College, Farmville, plans by Stone & Thompson, 211 Church Ave. W., Roanoke, auditorium. **$450,000.**

●**Va., Roanoke**—State, Richmond, plans by Brown, Wells & Meagher, 2309 Longview Ave. S. W., and Joseph H. Saunders, Alexandria, assoc archts. Catawba Tuberculosis Sanatorium addn. **$1,400,000.** CD 3/31/48—ENR 4/15/48.

Wash., Kittitas—School Bd., Kittitas, plans by W. A. Johnson, 1st Natl. Bank Bldg., Everett, high school. **$420,000.**

●**Wash., Parkland** — Franklin-Pierce School Dist., Parkland, voted bonds, high school. **$1,000,000.**

Wash., Seattle—State Hy. Dpt., O. R. Dinsmore, dir., Olympia, maintenance headquarters. **$500,000.**

Wis., Chippewa Falls—State Dpt. Public Welfare, State Capitol, Madison, plans by Gates, Moe, Weiss & Papenthien, archts. and consult. engrs., 611 N. Broadway, Milwaukee, Zone 2, 1 story, bsmnt., 61x109 ft. heating plant, at Northern Colony and Training School, incl. changes and imprvs. in electric distr. and water sys. **$700,000.** Roger C. Kirchkoff, Madison, state archt. CD 3/6/44—ENR 3/23/44.

Wis., Madison — Bd. Educ., 351 E. Wilson St., plans by Lewis Siberz, 103 W. Miflin St., 2 story part bsmnt., addn. to and remodel Sherman School. **$750,000.**

●**Alaska, Anchorage**—City, City Hall, power plant and steam heating unit. **$1,500,000.**

Alaska, Kotzebue—Alaska Native Service, Juneau, plans by Wm. Featherstone, Juneau, 50 houses, 3 bathhouses and ice storage house. **$325,000.**

Philippine Islands, Manila—Republic of the Philippines, Manila, caustic soda plant for (from limestone) from soda ash. **$350,000.**

Alta., Edmonton—City, G. S. Dougherty, clk., garage, Approx. **$220,000.**

Alta., Edmonton—Municipality, plans by M. C. Dewar, 7721 104 St., Edmonton, garage, **$220,000;** garage reconstruction **$100,000.** Edmonton Transport Comn., City Hall, engrs.

●**B. C., Vancouver**—Vancouver School Bd., 590 Hamilton St., plans by Davies & McNab, 923 Denman St., Sir James Douglas School, 7500 Victoria Dr., Approx. **$500,000;** plans by Gardiner & Thornton, 1664 W. Broadway, Lord Byn High School, 16 Ave. and Wallace St., Approx. **$750,000.** CD 1/15/47—ENR 2/6/47.

●**Man., Winnipeg**—City, L. M. Ault, clk., City Hall, 1,000 low-rental houses, Approx. **$7,000,000.** H. C. Spence, c/o Central Mortgage & Housing Corp., 828 Royal Bank Bldg., engr.

N. B., Bathurst—Hospital Bd., G. Gilbert, chn., Bathurst, 3 story, bsmnt., 41x100 ft. J. H. Dunn Hospital addn., Approx. **$300,000.**

N. B., East Florenceville—Dist. School Bd., c/o A. B. Brooks, East Florenceville, regional high school, **$300,000.**

N. B., Oromocto—Superior School Bd., c/o R. J. Campbell, Oromocto, regional high school, **$350,000.**

●**N. B., St. Stephen**—Charlotte Co., St. Andrews, plans by archt., c/o Dr. F. W. Porter, cir. P. Health Services, Fredericton, hospital, **$1,000,000.**

Ont., Cooksville—Toronto Twp., Cooksville, school, Ogden Ave. **$250,000.**

Que., Montreal—Municipality, c/o Welfare Dpt. City Hall, Home for Aged, **$300,000.**

Que., Montreal—Municipality, c/o St. Amant Welfare Dpt., City Hall, orphanage or industrial school for children, **$250,000.**

Que., Montreal—Municipality, c/o Conrad St. Amant, Dpt. Welfare, City Hall, hospital for incurables, **$500,000.**

Sask., Regina—P. School Bd., Regina, plans by Van Egmond & Storey, McCallum Hill Bldg., School, approx. **$250,000.**

COMMERCIAL BUILDINGS

Ala., Anniston — Y. M. C. A., c/o Van Keuren, Davis & Co., archts., American Life Bldg., Birmingham, Y. M. C. A. Bldg. **$350,000.**

Ala., Birmingham—Our Lady of Sorrows Church, 1327 6 Ave. S., rebuilding church, **$250,000.**

Ala., Fairfield—Fairfield Methodist Church, c/o Van Keuren Davis & Co., archts., American Life Bldg., Birmingham, church **$250,000.**

Ariz., Mesa—Methodist Church, Mesa, plans by Martin R. Young, 50 S. Udall St., church and Sunday School. **$350,000.**

Ariz., Phoenix—Franciscan Order, 3 and Monroe Sts., gymnasium, auditorium and rectory, **$300,000.**

Ark., Pine Bluff—Baim's Department Store, Pine Bluff, plans by Erhart, Eichenbaum & Rauch, Wallace Bldg., Little Rock, store, **$250,000.**

Calif., Berkeley—California Farm Bureau Federation, 2223 Fulton St., plans by Michael Goodman, 21261 Shattuck Ave., 3 story, rein.-con. office bldg. addn. **$350,000.**

Colo., Denver—B. M. P. Building Co., Denver, 1,000 seat theater, 2245 Kearney St. **$250,000.**

Conn., Darien — Noroton Presbyterian Parish, Post Rd., plans by Arland A. Dirlam, 673 Boylston St., Boston, Mass., 1 story, bsmnt., brick, stone church alterations, addsn. **$250,000.**

Idaho, Boise—Mountain States Telephone & Telegraph Co., 713 Idaho St., Boise, telephone exchange, **$500,000.**

Idaho, Caldwell—Mountain States Telephone & Telegraph Co., 713 Idaho St., Boise, telephone exchange, **$500,000.**

Idaho, Moscow—Murray Estes and R. A. Hooper, Moscow, shopping center, **$250,000.**

Idaho, Nampa—Mountain States Telephone & Telegraph Co., 713 Idaho St., Boise, telephone exchange, **$500,000.**

Ia., Des Moines — Wakonda Club, Fleur Dr and Watrous Ave., plans by Wetherell & Harrison, Shops Bldg., Des Moines, club house, **$300,000.**

Kan., Hays — First Methodist Church, Hays, church. **$350,000.**

Kan., Salina—Sacred Heart Parish, Salina, plans by E. J. Schulte, 920 E. MacMillan St., Cincinnati, O., cathedral, **$300,000.**

La., New Orleans — Dan Cohen, 1035 Baronne St., plans by Shourds, Mogabgab & Bean, Audubon Bldg., 129 apartment units. Over **$300,000.**

Minn., St. Paul—Riverview Memorial Hospital, C. Swanson, bus. mgr., 225 Prescott Ave., hospital addn. **$250,000.**

●**Mo., St. Louis**—Personal Housing Inc., Bernard H. Tureen, pres., 314 N. Broadway, Zone 2, plans by Charles H. Ellaby, archt and engr., 314 N. Broadway, Zone 2, and Study, Farrar & Majers, consult archts, Arcade Bldg., 812 Olive St., Zone 1, 1 or 2 story, brick, concrete houses, 200 family units, 15 acre tract west of Goodfellow Blvd., south of Statford Ave. for employees of St. Louis Administration Center, Dpt. Army, **$2,000,000.**

●**Mo., St. Louis**—Washington University, c/o Dr. Robert A. Moore, Dean, School of Medicine and A. H. Compton, chancellor, Skinker and Lindell Blvds., Zone, 5, 3 story, brick, steel, concrete dormitory, McKinley Ave., east of Kingshighway Blvd. **$1,500,000.**

Mo., Webster Groves (St. Louis, Zone 19, P. O.) — Webster Groves Christian Church, Rev. R. F. McCallister, pastor, 712 Tuxedo Blvd., plans by P. John Hoener, 3415 S. Kings Highway Blvd., St. Louis, Zone 9, brick, concrete chapel and church, Lockwood Ave. west of Berry Rd. **$300,000.** CD 3/9.

●**N. Y., Kew Gardens**—Kew Terrace, Inc., c/o Samuel Paul & Assoc., archt., 163-18 Jamaica Ave., Jamaica, nine 3 story garden apartments between Main and 147 Sts. and 78 and 79 Aves. **$1,550,000.**

N. Y., Patchogue — Sisters of Charity, S. Ocean Ave., plans by Beatty & Berlenbach, 32 Court St., Brooklyn, Zone 2, Seton Hall High School, Roe Blvd. Over **$250,000.**

●**N. C., Charlotte** — Convenant Presbyterian Church, Thomas M. Barnhardt, Jr., Gen. Chn., 120 Oakland Ave., plans by Cram & Ferguson, 248 Boyle St., Boston, Mass., and J. N. Pease, asst. engr.-archt., 119½ E. 5 St., church, etc., first units to be constructed education bldg., fellowship hall, sancturary, chapel, on 6¼ acres on E. Morehead St., Dilworth Rd. and Arosa Ave. Over **$2,000,000.** CD 6/23/47—ENR 7/3/47.

N. C., Raleigh—J. W. York, Capital Club Bldg., 58 units, 22 apartments, Cameron Village facing Clark Ave. Approx. **$450,000.**

O., Akron—Bishop Edward F. Hoban, N.B.C. Bldg., Cleveland, Catholic High School in East Akron, on 45 acre tract formerly known as Sumner Park.

O., Akron — First Congregational Church, 22249 Emerald St., plans by Thomas & Wagoner, 117 S. 17 St., Phila., Pa., church. **$550,000.**

O., Columbus — Bd. Trustees The Doctors Hospital, 1087 Dennison Ave., plans by Dan. A. Carmichael, 5 E. Long St., 3 story, bsmnt., approx. 92 bed Doctors Hospital addn. **$400,000.**

O., Hamilton — Lindenwald Methodist Church, Stanley Weed, pastor, plans by Ralph Orr, 265 Oakland Park Ave., Columbus, 2 story, bsmnt., 140x168 ft., brick, stone, concrete church. **$400,000.**

O., Painesville—Lake Erie College, Helen D. Bragdon, pres., Painesville, community service bldg. **$300,000.**

Okla., Oklahoma City—Mehl & Stanford, 1405 S.W. 20 St., plans by A. Davis, 2411 Apco Tower, 110 frame houses in Givens Addn. at S.W. 29 and Drexel Sts. **$700,000.**

Pa., Harrisburg — Motor Parts Co., 1229 Broad St., Phila., and 147 S. Cameron St., repair store. **$250,000.**

Pa., Mt. Lebanon Twp. — Lombardy Inc., 101 Central Square, Pittsburgh, Zone 16, plans by Tennyson & VanWart, 666 Washington Rd., Pittsburgh, Zone 16, 6 story, bsmnt., 97x99 ft., brick apartment. **$500,000.**

Pa., Phila.—Leo Posel, Lewis Tower Bldg., theatre. **$250,000.**

Pa., Pottstown—Paul L. A. Keiser, Maplewood Gardens, apartment development. **$250,000.**

●**Pa., Ridley Park**—Owner c/o George S. Idell, archt., 117 S. 17 St., Phila., apartment development, Lincoln Ave. and Walnut St. **$1,000,000.**

Pa., Upper Darby—Owner c/o James J. Ludwig, archt., 6403 Market St., 3 story office. **$250,000.**

Tenn., Collegedale — Southern Missionary College, Collegedale, plans by Smith & Ashby, Volunteer Bldg., Chattanooga, science bldg. **$250,000.**

Tex., Corpus Christi — Buccaneer Gardens, Inc., c/o Powell Baker, 518 N. Walter St., group housing, Staples and Minnesota Sts. **$350,000.**

●**Tex., Corpus Christi** — Orville W. Eastland, Jones Bldg., plans by E. Dexter Hamon, Med. Professional Bldg., 35 stucco, steel, concrete roof apartments, in Claire Line Gardens on Ayres St. **$1,500,000.** Frank Drought, 117 W. Pecan St., San Antonio, structural engr. H. Bartholomew & Assoc., 317 N. 11 St., St. Louis, Mo., site engrs.

●**Tex., Dallas** — Clearview Park, Inc., c/o D. Elliott & Hub Hill, 2600 S. Hampton St., 500 dwellings, concrete fdn. Mountain Lake Rd. and S. Hampton St. **$2,500,000.** Brown & Brown, 1905 N. Harwood St., consult. engrs.

Tex., Houston—First Methodist Church, c/o Paul Quillian, pastor, 1320 Main St., masonry, concrete, steel educational and recreational bldg., Travis St. between Bell and Clay Sts. **$750,000.**

Tex., Houston — Houston Academy of Medicine Library, Medical Arts Bldg., masonry medical library in Texas Medical Center. **$750,000.**

Tex., Houston—Francis Le Claia and Safeguard Life Insurance Co., c/o H. G. Pope, 618 Prairie St., 68 dwellings. **$350,000.** E. S. & Robert M. Atkinson, 1st Natl. Bank Bldg., consult. engrs.

Tex., Houston—R. C. West & Assoc., Citizens State Bank Bldg., addnl. housing, west of Memorial Park, **$275,000.**

Tex., Midland—First Christian Church, Midland, project abandoned, church. ENR 10/21.

Tex., San Antonio—A. A. Lowery, Fey Rd., plans by O'Neil Ford, Willow Way, Jerry Rogers, Willow Way, P. L. Shoop, R. H. Rogers, Olmos Dr. and DeHaven Pitts, Maverick Bldg., 132 stucco, frame, masonry dwellings, on 33 acre site. **$528,000.** Wm. Orrison & Co., Travis Bldg., consult. engrs

Tex., Sherman—Austin College, Sherman, plans by Brown & Chapman, Sherman, health center, **$250,000.** R. Rolfe, c/o owner, college archt. Lockwood & Andrews, Union Natl. Bank Bldg., Houston, consult. engrs.

Tex., Wichita Falls—E. E. Cloer, 1105 Harvey St., Fort Worth, 16 two story, brick veneer, concrete apartments, slab fdn. **$700,000.**

Utah, Salt Lake City—Doxey-Layton Realty Co., 1310 S. 9 East St., plans by Arthur Fahr, 248 S. Main St., medical-dental bldg. **$750,000.** CD 10/6/47—ENR 10/16/47.

Wash., Everett—Everett General Hospital, Everett, hospital addn. **$500,000.**

Wash., Toppenish — Toppenish Hospital Assn., Toppenish, plans by T. F. Hargis, Jr., Miller Bldg., Yakima, hospital. **$275,000.** CD 2/14/46—ENR 2/28/46.

●**Alta., Edmonton**—Canadian National R. R., B. Wheelwright, ch. engr., 360 McGill St., Montreal, Que., will not construct 140 room MacDonald Hotel adn. **$4,000,000.** Project abandoned. CD 10/1—ENR 10/28.

●**Ont., Guelph**—N. McMillan, 32 Gladwin St., 231 dwellings. Over **$1,500,000.**

INDUSTRIAL BUILDINGS

●**Fla., Green Cove Springs**—PLANT—Florida Power & Light Co., Ingraham Bldg., Miami, 66,000 kw capacity electric power plant on St. Johns river near here, **$10,000,000.**

●**Ill., Chicago**—WAREHOUSE—Carson Pirie Scott & Co., 1 S. State St., plans by DeYoung, Moscowitz & Rosenberg, 205 E. 42 St., New York, N. Y., warehouse, 7100 S. Cicero Ave. **$3,500,000.**

●**Ill., Chicago**—FACTORY, etc.—E. H. Sargent & Co., 155 E. Superior St., plans by Olsen & Urbain, 5 S. Wabash St., 1 story, brick, factory and office, **$1,000,000.** CD 2/23—ENR 3/10.

●**Minn., Fergus Falls**—PLANT—Otter Tail Power Co., C. Wright, gen. mgr., Fergus Falls, 15,000 kilowatt generating plant, Hoot Lake, near Fergus Falls, **$3,000,000.**

Mo., St. Joseph—WAREHOUSE—Associated Grocers, 804 S. 14 St., warehouse, **$300,000.**

Neb., Columbus—PLANT—Becton, Dickinson & Co., Cornelia St. East Rutherford, N. J., plant mfg. thermometers. **$300,000.**

Neb., Lincoln—GARAGE—Lincoln Development Co., 13 and M Sts., plans by M. I. Aitken, Stuart Bldg., and Clark & Enersen, 1414 Sharp Bldg., 4 story parking garage. **$400,000.**

Neb., Omaha—PLANT—P. F. Petersen Baking Co., 12 and Jackson Sts., baking plant on 10 acre tract, 72 and Dodge Sts. **$350,000.**

●**N. Y., Newburgh**—PLANT—Central Hudson Gas & Electric Corp., South Ave., Poughkeepsie, steam plant to generate 50,000 to 60,000 kw of electricity at Dannskammer Point on west side of Hudson 4 mi. north of here. **$1,000,000.**

O., Bucyrus—SHOP—New York Central R. R., E. A. Dougherty, ch. engr. (west of Buffalo) La Salle St Station, Chicago 5, Ill., convert car repair shop to diesel repair and maintenance plant and other yard imprvs. **$300,000.**

Pa., Harrisburg—STORAGE, WAREHOUSE—Cook Industries, Inc., 12 N. 7 St., Camden, N. J., plans by C. S. Buchart, York, 162,800 sq. ft. brick, concrete block storage and transit warehouse along tracks of Pennsylvania R.R. North of city at Pennwood Rd. **$950,000.**

●**Pa., Pittsburgh**—MILL—Jones & Laughlin Steel Corp., 3 and Ross Sts., 1 and 2 story, brick, steel, steel mill, facilities for furnishing cold rolled sheet steel and tinplate, new soaking pits, 5 open hearth furnaces and imprvs. to blast furnaces. **$70,000,000.** Swindell, Dressler Co., Aspinwall, consult. engrs. CD 1/14—ENR 2/3.

Tenn., Chattanooga—PLANT—U. S. Pipe & Foundry Co., Chestnut and 27 Sts., plant addn. Over **$100,000.**

Tex., Brenham—PLANT—Thomas J. Lipton Inc., Tea Co., c/o Erich H. Feasley, prod. mgr., 1500 Hudson St., Hoboken, N. J., plant. **$150,000.**

Tex., Dallas—WAREHOUSE—Southern Express, Inc., 3131 Oak Lane St., plans by Herman G. Cox, N. P. Anderson Bldg., Fort Worth, 1 story, 36,000 sq. ft. frame freight terminal warehouse concrete slab fdn. **$230,000.** CD 3/4—ENR 3/17.

Tex., Dallas—PLANT—Standard Laundry & Dry Cleaning Mchy. Co., 3015 Bryan St., plant, on 4½ acre site, 6814 Maple Ave. **$200,000.**

●**Tex., Karnes City** — PLANT — United Gas Corp., Fairfield Ave., Shreveport, La., gasoline plant, 89 acre tract for site just purchased. **$2,000,000.**

Tex., Port Arthur—WAREHOUSE—Co-opertive Associated Grocery Stores, c/o A. Plettman, pres., Port Arthur, masonry warehouse, 7 St. **$250,000.** L. M. Muirhead, 3560 Magnolia St. Beaumont, consult. engr.

Philippine Islands, Manila — PLANT — National Development Co., Manila, plant for mfg. super-phosphate fertilizers. **$350,000.**

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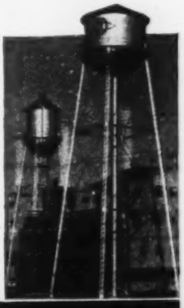

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CONSTRUCTION REPORTS—Third Section

WATER SUPPLY

BIDS ASKED

April 7

†Utah—Bureau Reclamation, Dpt. Interior, Salt Lake City, equalizing reservoir for Laterals 25 and 25A, near Ogden, Odgen River Proj., Spec. R4-15 (Region 4).

April 20

Kan., Kansas City—City, Bd. P. Utilities, treatment plant, $500,000. Burns & McDonnell Eng. Co., 95 and Troost Sts., Kansas City, Mo., engrs. CD 11/24—ENR 12/9.

April 21

Ore., Dallas—City, City Hall 3 m.g. rein.-con. reservoir; installing 5,510 ft. 16 in. concrete cylinder pipe for water supply line. Cornell, Howland, Hayes & Merryfield, Rennie Bldg., Corvallis, engrs. CD 9/7—ENR 9/16.

LOW BIDDERS

Ind., Elkhart—City, Bd. Waterworks Trustees, E. Russell, pres., City Hall, Mar. 22, Contr. 1, drilling 4 wells, development, pumps from Dunbar Drill & Supply Co., Delta, O., **$31,315***** Contr. 2, elevated steel tank, and Contr. 3, 2 m.g. welded steel reservoir, electrification pump. plant, valves, meters, 5 well house alterations, from Haines & Haines, Elkhart, **$61,186** and **$214,033** respectively. Est. $325,000. CD 3/16.

Ore., Corvallis—City, City Hall, Mar. 21, water treatment plant, from Carl M. Halvorson, Builders Exchange Bldg., Portland, **$324,912.** CD 2/17—ENR 3/10.

CONTRACTS AWARDED

Ill., Mt. Prospect—Village, 1 story, brick pump. station, well and pumping equip., to S. B. Geiger & Co., 37 W. Van Buren St., Chicago, **$42,860.** Consoer, Townsend & Assoc., 351 E. Ohio St., Chicago, engrs.

Minn., Anoka—State Dpt. Admin., State Capitol, St. Paul, water distr. sys., alterations, State Hospital, to Lametti & Lametti, 615 Drake St., St. Paul, **$34,114.** Bid 1/18. CD 1/3—ENR 1/6.

Alta., Dawson Creek—Municipality, WW imprvs., own forces, **$58,000.** W. Scales, Dawson Creek, engr.

Ont., Owen Soand—Municipality, watermains, under Jubilee Bridge, Second Ave., Twelfth St., own forces, **$26,300**. P. Utilities Comn., Owen Sound, engr. CD 1/4/46—ENR 1/24/46.

Ont., Steep Rock Lake—Steep Rock Iron Mines Ltd., 25 W. King St., Toronto, water sys., own forces, **$100,000.**

SEWERS, WASTE DISPOSAL

BIDS ASKED

April 4

Pa., Harrisburg—Swatara Twp. Auth., c/o I. M. Glace, engr., 1001 N. Front St., sanitary sewers, appurtenances in Lawnton-Oakleigh Sewer Dist., Swatara Twp. Plans deposit $25.

April 8

Minn., Hutchinson—State Hy. Dpt., 1246 University Ave., St. Paul, 5,886 lin. ft. 12-to 18-in. storm sewer, 133 lin. ft. manhole and 133 ft. catch basin, S. P. 4304-15 (Trunk Hy. 15-151) and S. P. 4307-07 (TH-22-22) F 944 (9) and F 338 (11). $50,000

Okla., Oklahoma City—James E. Fain, c/o Oklahoma Industries, Inc., First Natl. Bldg., Zone 2, sanitary sewers for Oklahoma Industries Industrial Dist. $52,000. H. E. Chase, city engr.

April 11

Calif., Hayward—City, City Hall, trunk sewer for Muir District outside city limits. $145,000. Plans deposit $25. John A. Mancini, 1201 B St., Hayward, engr. CD 9/16—ENR 9/23.

April 12

Tex., Dallas—City, Earl Goforth, secy., City Hall, 27,400 lin. ft. 8-to 15-in. sanitary sewer lines, 1st part of Ash Creek and Casa Linda Addn. $100,000. CD 12/13/45—ENR 12/27/45.

April 14

Ill., Chicago—Sanitary Dist. of Chicago, 910 S. Michigan Ave., 66 vacuum type sludge filters, 4 vacuum receivers, etc., West-Southwest Sewage Treatment Wks., Div. N. Stickney. Plans deposit $10. CD 3/9/45—ENR 3/19/5.

April 15

●**Wash., Seattle**—Greenwood Ave. Sewer Dist., c/o Parker & Hill, engrs., Smith Tower, Zone 4, 30,000 ft. 8 and 10 in. concrete lateral sewers, Contr. 4, $120,000; 48,000 ft. 6-to 12-in. concrete lateral sewers, Contr. 5, $300,000; 35,000 ft. 6-to 10-in- concrete lateral sewers, Contr. 6, $175,000; 39,000 ft. 6-to 10-in. lateral sewers, Contr. 7, $180,000; 94,000 ft. 6-to 21-in. concrete lateral sewers, Contr. 8, $275,000; 1,200 ft. 30 in. corrugated pipe outfall sewer, $35,000; 12,000 ft. 8-to 27-in. concrete trunk sewers, $107,000; sewage treatment plant, $95,000. Plans deposit $10 each. CD 11/10—ENR 11/25.

April 21

Mass., Boston—Metropolitan Dist. Comn., Wm. T. Morrissey, comr., 20 Somerset St., removal pump. equip., furnishing, installing sewage pump. equip., piping, motor operated gate valves, electrical control equip., stairs, Deer Island Sewage Pumping Station, Deer Island. Approx. $100,000. Plans deposit $10. CD 5/12/44—ENR 6/1/44.

April 26

Conn., New Haven—City, Municipal Offices, New Haven, sewage disposal plant, incl. settling tanks, control chamber, digestion tanks, appurtenances, East Shore Proj. $700,000. Vincent Barry, city engr. CD 12/14—ENR 12/16.

Ore., Portland—City, City Hall, Zone 4, 3 mi. 8 ft. concrete lined sewer tunnel for Peninsula unit. Plans deposit $25. Ben S. Morrow, city engr. CD 7/20/45—ENR 8/2/45.

May 29

Calif., Los Angeles—City Harbor Comn., 102 City Hall, incinerator at Terinal Island, $75,000. H. C. Earl, harbor engr. CD 11/24—ENR 12/2.

Bids Asked

Conn., Darien—Town, E. W. Ashley, chn. Sewer Comn., Darien, (selected list bidders) 17,200 ft. 8 in. sanitary sewers Dist. 2, $50,000. C. L. Bogert Assoc., 624 Madison Ave., New York, N. Y., engrs.

LOW BIDDERS

Calif., Belvedere—City, City Hall, rejected bids Mar. 21, sewer lines, pumping and treatment works, L. B. Sch. B, **$166,455;** Sch. C, **$158,783.** CD 3/11.

Calif., Los Angeles—Los Angeles Co., 501 Hall of Records, Mar. 22, 4.53 mi. 8-to 12-in. vitr. clay sanitary sewers in Church St., from Bob Bosnyak, 3014 Worthen Ave., **$178,475.** Est. $135,915. CD 3/1—ENR 3/3.

Calif., Oakland—City, City Hall, Mar. 22, sewer pipe conduits in Shattuck Ave from 58 to 66 Sts., from Edwin J. Tobin, 1000 Carleton St., Berkeley, **$54,613.**

Calif., San Jose—City, City Hall, Mar. 21, sanitary and storm sewers, Unit 2, from Bebek & Brkich, 5025 E. Slauson Ave., Los Angeles, **$308,493.** CD 3/3—ENR 3/10.

Calif., Stockton—City, City Hall, Mar. 21, South Sewage Treatment Plant, from Fred J. Early, Jr., 369 Pine St., San Francisco, **$197,717.** CD 3/1—ENR 3/3.

Calif., Tiburon—Sanitary Dist. 5, Tiburon, received no bids Mar. 21, sewerage sys., appurtenances. CD 3/8—ENR 3/10.

La., Ponchatoula—Town, Mar. 22, 35,000 lin. ft. 8 in. sewer extens., incl. manholes, house connections, etc., from Red River Constr. Co., 2212 Hollywood Ave., Shreveport, **$94,864.** CD 3/2—ENR 3/10.

Tex., San Antonio—City, James W. Knight, street comr., Mar. 24, Sect. 2, East Side Sewer line, from H. B. Zachry Co., P. O. Box 2570, **$188,567.** Beavers & Lodal, 1422 Transit Tower, engrs.

CONTRACTS AWARDED

Kan., Wichita—City, City Hall, sanitary sewers, to W. B. Carter, 1224 N. Broadway, **$99,216.** Est. $106,231, L. K. White, city engr.

Alta., Dawson Creek—Municipality, sewer extens., day labor. **$128,000.** W. Scales, Dawson Creek, engr.

Ont., Steep Rock Lake—Steep Rock Mines Ltd., 25 W. King St., Toronto, sewerage sys., own forces. **$75,000.**

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

April 4
Connecticut
April 7
New Hampshire
April 8
Kentucky
Minnesota

April 14
Virginia
April 20
California
April 22
Alabama
May 4
Louisiana

April 14

Wash., Seattle—King Co., County-City Bldg., Zone 4, 472 ft. rein.-con. bridge, 15 Ave. N. E. between E. 104 and 107 Sts. replacing timber trestle. $190,000. Plans deposit $10. D. L. Evans, co. engr. CD 2/4—ENR 2/13.

April 18

†Alaska — Pub. Roads Admin., Juneau, bridge on Sect. F-3 of Seward-Anchorage (Turnagain Arm) Proj. Plans deposit $10. CD 8/3/45—ENR 8/23/45.

April 23

Ont., L'Orignal — Engineer, c/o Clarence Twp., L'Orignal, 94 ft. bridge over Bear Brook, incl. superstructure, substructure, concrete floor, railing, Lot 22, Concession 6 and 7, Approx. $60,000. R. Boismenn, c/o owner, archt.

LOW BIDDERS

Louisiana—State Hy. Dpt., Baton Rouge, Mar. 23, bridge repairs, 5 creosoted timber trestle bridges, c. conc. approaches, 0.335 mi. Morgan City-Houma Hy., State Rt. 2, A. P. 5-02-10 and 5-03-07, Assumption and Terrebonne Parishes, from Newsom Bros., Columbia, Minn., **$166,152.** CD 2/16—ENR 2/24.

●**Maryland**—State Hy. Dpt., Baltimore, rejected bids Mar. 15, substructure, Sect. E and E alternates, Piers 23 to 28 inclusive and islands, for Chesapeake Bay Bridge, Contr. CBB 10-1-87, Anne Arundel and Queen Anne Counties, L. B. **$23,772,490.** CD 3/24—ENR 3/31.

CONTRACTS AWARDED

Iowa—State Hy. Dpt., Ames, 24x222 ft. I-beam bridge County Trunk Rd. T just north of Rock Valley over Rock River and Rock River Overflow, between Sects. 20 and 21-97-46, and between Sects. 16 and 17-97-46, S 214, (1), 24x374 ft. continuous I-beam bridge, S 214 (1), Sioux Co., to Western Eng. Co., Harlan, **$142,293.** CD 2/16—ENR 2/24, under L.B.

Montana—State Hy. Dpt., Billings, steel; concrete bridge over Yellowstone River, Billings-Pompeys Pillar Rd., near Huntley, Yellowstone Co., to W. P. Roscoe Co., Billings, **$623,848*****200 ft. steel, concrete overpass over Great Northern Ry., Judith Gap-south sect. Harlowton-Moore Rd., incl. grading, graveling, draining, surf., Wheatland Co., to Walter Mackin & Son, Billings, **$108,073*****130 ft. steel, concerte bridge, Ulm-south Rr., incl. grading, etc., Cascade Co., to Utility Builders Inc., Great Falls, **$63,598.** Grand total $795,519. CD 3/16.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

April 4
Connecticut
April 5
Kansas
Maryland
April 6
Louisiana
April 7
Ontario
April 8
Kentucky
Minnesota
North Dakota
April 9
Alberta

April 12
Ohio
April 13
California
April 14
California
Virginia
April 20
California
Louisiana
April 22
Alabama
May 4
California

April 9

Ont., Sarnia—Miss M. D. Stewart, City Hall, approx. 14,000 lin. ft. sidewalk, 28,000 lin. ft. curb and gutter, catch basins, $50,000. Plans $10. W. Greenwood, city engr.

April 12

†California—Public Roads Admin., 720 Phelan Bldg., San Francisco, hy. imprv. 6.362 mi. Mill Creek, San Bernardino National Park, Calif. 68-E, San Bernardino Co. Plans deposit $10. Charles Morris, div. engr.

Tex., Beaumont—City, City Hall and Jefferson Co., c. conc. 1.35 mi. Park St. $81,930. R. C. Black, city engr. CD 2/11—ENR 3/3.

April 14

Fla., Jacksonville — City, reconstructing, widn., resurf., paving Monroe St. from Washington St. to Newman St. Approx. $50,000. W. E. Shedden, city engr. CD 1/17/45—ENR 2/8/45.

CONTRACTS AWARDED

Idaho—State Hy. Dpt., Boise, b. conc. 5.051 mi. U. S. 95 alternate between Santa & Flat Creek, Benewah Co., to Materne Bros., W 330 Buckeye St., Spokane, Wash., **$107,626.** Est. $115,576, Awarded 3/7. CD 9/22—ENR 10/14.

Ia., Cherokee — Cherokee Co., Cherokee, grading, to Scothorn Constr. Co., Cherokee, **$62,312.** L. W. Casey, Cherokee, co. engr.

Kan., Topeka—City, City Hall, c. conc. 31 blocks, to M. M. Small, Lower Waite St., **$273,250.** Est. $288,743. W. E. Baldry, city engr. CD 11/16/44—ENR 11/30/44.

Montana—State Hy. Dpt., Butte, grav. and oil 16.3 mi. Manhattan South Rd., Gallitan Co., to Charles Shannon Co., 502 S. Washington St., Butte, **$306,607;** 4.676 mi. Thompson Falls-Ravalli Rd., Sanders Co., to Union Constr. Co., Missoula, **$133,409.** CD 3/16.

Ont., Toronto—Municipality, c. conc. Ryding Ave., MacLennan Ave., Glen Scarlet Rd., Symes Rd. and St. Clair Ave., own forces. **$155,786.** W. D. Hurst, city engr. CD 10/9/46—ENR 10/31/46.

LOW BIDDERS

●**California**—State Div. Hys., Sacramento, Mar. 23, plant mix on crusher run surf. 14 mi. road between 3.5 southeast of Brentwood and Byron Junctions, Contra Costa Co., from J. R. Armstrong, 400 Central St., El Cerrito, **$53,922*****grading 3.8 mi. road between 0.5 mi. south of Stone Lagoon Summit and 1 mi.

south of Orick, Humboldt Co., from Piombo Constr. Co., 1571 Turk St., San Francisco, **$668,708***** plant mix surf. 10.9 mi. portion hy. between Merced River and Delhi and between Merced-Stanislaus Co. line and Hatch Crossing, Merced and Stanislaus Counties, from M. J. Ruddy 922 J St., Modesto, **$87,720*****c. con. on cement treated subgrade and plant mix on c. conc. surf. and untreated rock base 7.2 mi. between Mariposa Rd. south of Stockton and between Wilson and New Route 4, Stockton, San Joaquin Co.; from United Concrete Pipe Corp., Box 420, Baldwin Park, **$1,067,165*****plant mix on imported base material surf. 5 mi. road between (Half Moon Bay and Montara Creek, San Mateo Co., and plant mix on crusher run and on imported base material surf. 7.8 mi. road between Camp Lowe and Bailey Hill, Siskiyou Co., from A. Teichert & Son, Box 1113, Sacramento, **$363,387** and **$262,991** respectively. CD 3/2—ENR 3/10.

Kan., Lebanon—City, City Hall, Mar. 15, street imprvs., from Rhoades Constr. Co., Newton, **$51,400.** Est. $51,903. CD 3/8—ENR 3/10.

●**Maryland**—State Hy. Dpt., Baltimore, Mar. 22, b. conc. 3.838 mi. State Rt. 202, Spec. B, P-648-515, Prince Georges Co., from American Asphalt Products Co., 60 P St. S. E., Wash., D. C., **$178,302;** c. conc. 7.260 mi. Westover Marion Rd., State Rt. 413, Contr. S-156-1-115, Somerset Co., from C. J. Lagenfelder & Sons, Inc., 8427 Pulaski Hy., Baltimore, **$1,162,275.** CD 3/16.

Md., Baltimore—Mayor & City Council, City Hall, Mar. 23, sheet asph. paving streets, Contr. 946, from Potts & Callahan Paving Co., Inc., 2801 Falls Rd., **$123,195*****Contr. 947 from The American Paving & Contg. Co., 2525 Lock Raven Blvd., **$120,855*****Contr. 948, from Frank L. Carozza Constr. Co., 511 Park Ave., **$61,131.** CD 3/16.

EARTHWORK, WATERWAYS

BIDS ASKED

Early in April

✦**Iowa**—U. S. Eng., 1709 Jackson St., Omaha, Neb., levees, appurtenances, Unit II near Council Bluffs, Serial No. Eng. 25-066-49-137. Extended date. CD 3/5—ENR 3/10.

April 7

Ont., Perth—W. L. Dickson, engr., Court House, Perth, 11,000 cu. yd. solid rock, 1,000 cu. yd. granular fill, Mud Lake Bridge, for Lanark Co. Approx. $135,000.

About April 18

✦**Kansas and Missouri**—U. S. Eng., 601 Davidson Bldg., Kansas City, Zone 8, levee replacement and repair, right bank Missouri River, between St. Joseph and Atchison Kan., involv. 62,850 cu. yd. earth fill, 6,400 cu. yd. compacting embankment, 1,400 station yd. overhaul, etc., Serial No. Eng. 23-028-49-185; left bank Missouri River, between Atchison Kan. and Leavenworth Kan., involv. 55,000 cu. yd. earth fill, 500 cu. yd. compacting embankment, 900 station yd. overhaul, etc., Serial No. Eng. 23-028-49-186.

✦**Missouri-Nebraska**—U. S. Eng., 601 Davidson Bldg., Kansas City, Zone 8, Mo., replacement and repair levees, Missouri River, between Rule Neb., and St. Joseph Mo., 6,500 cu. yd. earth fill, 4,800 cu. yd. compacted embankment, 2,000 cu. yd. excav., 750 sta. yds. overhaul, Serial No. Eng. 23-028-49-184.

✦**Missouri**—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., replacement and repair levees, right and left banks, Nodaway River, Mo., 25,800 cu. yd. earth fill in levee, 2,600 cu. yd. compacting embankment, 1,200 cu. yd. excav., 500 sta. yd. overhaul, Serial No. Eng. 23-028-49-187.

April 20

O., Columbus—Dpt. P. Wks., G. B. Sowers, dir., Ohio Dpts. Bldg., Zone 15, dam, spillway and other work on Indian Creek, near Riley, Butler Co. Plans deposit $25.

About April 26

✦**Minn., Minneapolis**—U. S. Eng., 1217 U. S. Post Office and Custom House, St. Paul, dredging in lower channel approach to Lower Lock and Dam, St. Anthony Falls Proj.

April 26

✦**Ky., Newport**—U. S. Eng., 830 W. Broadway, Louisville, Sect. II, Part 1, local protection proj., incl. installation steel sheet piling cells for flood wall, 8- to 24-in. sewers, 36 in. monolithic concrete sewer through cell wall, 54 in. metal pipe sewer through cell wall, etc., Serial No. Eng. 15-029-49-122.

April 28

✦**Montana**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point, or f.o.b. cars Coram, 2 electric motor driven horizontal shaft, centrifugal type pump. units for coldwater service, 2 electric motor driven gear type oil pumping units, Hungry Horse Power Plant, Hungry Horse Proj., Spec. 2627. Plans deposit 25c. L. N. McClellan, ch. engr.

LOW BIDDERS

✦**California** — U. S. Eng., Wright Bldg., Sacramento, Mar. 22, earthfilled Owens Dam, concrete structures, etc., about 18 mi. east of Merced, Merced Co., from A. Teichert & Son, Inc., Box 113, Sacramento, **$235,328.** CD 3/2—ENR 3/10.

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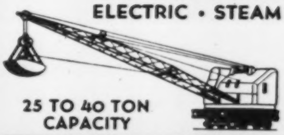

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●†**Oregon**—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., Mar. 22, design, fabrication and delivery equip. for navigation lock at McNary Dam, Umatilla, from Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho, **$2,845,728.** CD 2/16—ENR 2/24.

CONTRACTS AWARDED

Pennsylvania—Dpt. Forests & Waters, 404 Education Bldg., Harrisburg, silt impounding basins on Schuylkill River, at Oaks Site and North Abrams Site, to James D. Morrissey, Inc., Willits and Home Ave., Phila., **$531,097.** Bids 3/8, awarded 3/25. CD 3/14—ENR 3/17, under LB.

●†**Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, completing embankment spillway and service bridge for San Angelo Dam and Reservoir Proj., Inv. No. Eng. 41-243-49-126, to Winston Bros. Co. and Taylor-Wheless Co., 1470 Northwestern Bank Bldg., Minneapolis 2, Minn., Alt. bid **$5,590,274.** Bids 3/8, awarded 3/24. CD 3/14—ENR 3/17, under LB.

P.E.I., Charlottetown — Dominion Govt., Hunter Bldg., Ottawa, Ont., dredging Rustico Bay, own forces. **$90,000.**

AIRPORTS AND AIRBASES

BIDS ASKED

April 7

†**Tex., Corpus Christi** — TAXIWAY — Yards & Docks Annex, Navy Dpt., Arlington, Va., taxiway between Runways 17 and 22 at Cabaniss Field.

April 12

Tex., Nacogdoches—AIRPORT—City, A. J. Thompson, mayor, municipal airport. $90,055. Plans deposit $25. A. D. Muckelroy, Nacogdoches, engr. CD 1/18/45—ENR 3/22/45.

LOW BIDDERS

Ky., Hazard—AIRPORT IMPRVS.—Hazard Municipal Bd., Hazard, Mar. 10, grading, draining, air markers, seeding Hazard Airport, from Claude Booth, Hazard, **$69,953.** V. M. O'Bryan, ch. engr. CD 2/23—ENR 2/24.

Neb., Valentine—AIRPORT—City, Mar. 4, municipal airport, from Missouri Valley Constr. Co., Omaha Natl. Bank Bldg., Omaha, **$65,186.** Est. $65,230. CD 2/18—ENR 2/24.

CONTRACTS AWARDED

Ia., Des Moines—TERMINAL ADMINISTRATION BLDG.—City, City Hall, general contract terminal administration bldg., municipal airport, to Carmer & Stiles Co., 519 14 St., **$511,700.** Bids 2/7. CD 2/16—ENR 2/24.

Ont., Centralia—AIRPORT IMPRVS.—Dominion Govt., Dpt. National Defense, Ottawa, airport imprvs., to A. F. Byers Const. Co. Ltd., 5675 Western Ave., Montreal **$56,200.** Est. $50,000. Canadian Commercial Corp., 70 Lyon St., Ottawa, engrs.

PUBLIC BUILDINGS

BIDS ASKED

April 6

Ia., Mt. Pleasant—City, City Hall, power piping, insulation, power wiring, municipal light and power plant. Extended date. Black & Veatch, 4706 Broadway, Kansas City, 2, Mo., engrs. CD 2/2—ENR 2/10.

April 11

†**Oregon** — Bonneville Power Admin., 729 N. E. Oregon St., Portland, Walton Substation, Lane Co., Inv. 4499, Plans deposit $25.

April 12

N. Y., New York — Superintendent School Buildings, Design & Constr. 49 Flatbush Ave. exten., Brooklyn, Zone 1, general contract P. S. 33 26 St. and 9 Ave. Plans deposit $19.

N. S., North Sydney—S. M. Rhude, City Hall, high school, $300,000. Plans deposit $50. A. N. MacLeod, P. O. Box 523, Sydney, archt.

April 13

Ont., Ottawa—J. M. Somerville, secy., c/o Dpt. P. Wks., Hunter Bldg., Ottawa, first phase 46x64x290 ft. rein.-con., steel, concrete Applied Chemistry Bldg., National Research Laboratories, Montreal Rd. Approx. $750,000. Plans deposit $100. G. Brault, c/o owner, engr. CD 12/8/43—ENR 12/16/43.

Que., Montreal—Secy., c/o Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., steel addns., alterations to Postal Terminal Bldg., St. James and St. Antoine Sts. Approx. $800,000. G. Brault, c/o owner engr. CD 11/9/44—ENR 12/14/44.

April 14

Mo., Jefferson City—Lincoln University, S. D. Scrugggs, pres., and Wm. L. Smith, state purch. agt., State Capitol, Jefferson City, brick, concrete, stone boys dormitory, Lincoln University, Louis Edwin Fry, Lincoln University, archt. CD 11/29—ENR 12/9, under LB.

†**New Mexico** — Bureau Reclamation, Dpt. Interior, El Paso, Tex., one four-room residence and detached garage at Alamogordo and one 4-room residence and three-car detached garage at Caballo Dam, Rio Grande Proj., Spec. R5-12 (Region 5).

Ore., Reedsport—Union High School Dist. 13, Reedsport, L. shaped 246x248 ft. masonry high school and gymnasium. Plans deposit $25. Freeman & Hayslip, Postal Bldg., Portland, Zone 4, archts. CD 1/30/46—ENR 5/16/46.

April 18

†**Pa., Norristown** — Div. Purchasing, Sales & Traffic Dpt., Dpt. Agriculture, 14 St. and Independence Ave., Wash. D. C., hazardous operations bldg. at site of Eastern Regional Research Laboratory, Wyndmoor Springfield Twp.

April 19

Calif., El Cajon—State Div. Architecture, P. Wks. Bldg., Sacramento, 1 story, Type B, California National Guard Armory, with rein.-con. floors and walls. Plans deposit $25. Anson Boyd, state archt.

N. Y., New York—New York City Housing Auth., 63 Park Row, Row 7, New York, (1) foundations and general construction (2) heating and ventilating (3) electrical work and (4) plumbing for Colonial Park Houses, Proj. No. NYC-6, to be constructed in area bounded by Harlem River Dr., Polo Grounds, Harlem River Driveway, Manhattan Boro. Plans deposit $75. CD 3/ 18/ 48—ENR 4/1/48.

Ore., Junction City—School Dist. 69-C, Junction City, 10 classroom Junior High School. Plans deposit $25. Freeman & Hayslip, Postal Bldg., Portland, Zone 4, archts. CD 9/2/48—ENR 9/16/48.

April 20

Neb., Grand Island—City, power plant imprvs. $87,500. Extended date. Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs. CD 3/22—ENR 3/24.

April 22

†**Ohio**—U. S. Eng., 925 New Federal Bldg., Pittsburgh 19, Pa., damtenders dwellings, storage bldg., appurtenant work, Mosquito Creek Dam, Trumbull Co., Serial No. Eng-36-058-49-110.

April 25

New York—Fire Comr., Municipal Bldg., New York, Zone 7, modifications and extens. of equip. of Queens Fire Alarm Central Station, Park Lane South, of Queens Boro. Plans deposit $25.

April 26

Conn., Shelton—Town, Municipal Bldg., 40 White St., Shelton, 1 story 150x225 ft., brick, steel Huntington School. $300,000. Plans deposit $35. Brown & VonBeren, Inc., 295 Sherman Ave., New Haven, archt. CD 10/27—ENR 11/11.

May 4

●**Va., Staunton**—At office Dr. Barrett, 9 N. 12 St., Richmond, boiler plant at Western State Hospital, for State of Virginia. CD 12/6/44—ENR 12/28/44.

May 5

†**New Mexico and Texas**—Bureau Reclamation, Dpt. Interior, Bldg 1-A, Denver Federal Center, Denver, Colo., one 3,000 kva. outdoor, package-type substation for Hot Springs substation, Rio Grande Proj., Spec. 2624.

●**Tex., Terrell**—State Bd. Control, Hal Logan, chn. Capitol Bldg., Austin, masonry, steel, concrete Terrell State Hospital Dormitory wings. $1,900,000. Plans deposit $50. Tatum, Alexander & Quade, 2812 Fairmount St., Dallas, archts. CD 1/19—ENR 2/3.

May 10

†**Alaska, Juneau**—U. S. Eng., Alaska Dist., APO 942, c/o PM, Seattle Wash., 1 story, 35x36 ft. frame family unit with bsmnt., S95-507-49-29. Plans deposit $10.

†**Alaska, Nome**— U. S. Eng., APO 942, c/o P. M., Seattle, Wash., 1 story, 37x45 ft., frame family quarters, piling fdn., S95-507-49-22. Plans deposit $10.

†**Alaska, Sitka**—U. S. Eng., Alaska Dist, APO 942, c/o P. M., Seattle, Wash., 20x22 ft. frame garage, S95-507-49-28. Plans deposit $50.

CONTRACTS AWARDED

Ill., Evanston—Evanston Twp., High School, Evanston, general contract 1 and 2 story, 2 story brick, steel, concrete gymnasium, offices, barber room, etc., to Peter Hamlin Co., 9 S. Clinton St., Chicago, Approx. **$600,000.** Perkins & Will, 309 W. Jackson St., Chicago, archt. Bids 3/21. CD 3/11.

Ill., Watseka—Bd. Directors School Dpt., City Hall, 2 story, bsmnt., 265 x 240 ft., brick, concrete school, to James Leck, 211 S. 11 St., Minneapolis, Minn., **$431,930.** Bids 3/7, awarded 3/14. Alfred Benesch & Assoc., 30 E. Adams St., Chicago, engrs. CD 3/2.

Mo., Kennett—Bd. Trustees Dunklin Co. Hospital, Dr. Paul Baldwin, chn., Court House, 2 story, 42 x 246 ft. and 46 x 67 ft. T-shaped brick, concrete hospital, third floor sect. 43 x 170 ft., to Ray M. Dilschneider, Inc., 8600 Manchester Rd., Brentwood, St. Louis, Zone 17, **$769,300.** Bids 2/24. CD 3/7—ENR 3/10, under LB.

O., Bexley (Br. Columbus)—Bd. Educ., Bexley, general contract, Maryland School, Maryland Ave. and Cassingham Rd., to Altman-Coady Co., 1251 Fairwood St., Columbus, **$446,393.** Sims, Cornelius & Schooley; 2901 N. High St., Columbus, archts. CD 10/8—ENR 10/28.

Wis., Sturgeon Bay—Door Co., Sturgeon Bay, 1 story, 72 x 200 ft., concrete block, brick, steel highway shop addn., concrete fdn. day labor. S. Schmitt, Two Rivers, archt. R. B. Bieri, co. engr. CD 6/2—ENR 6/10, under LB.

Ont., St. Catharines—Ridley College Bd. Governors, Dr. H. C. Griffith, headmaster, memorial hall and infirmary to Pigott Constr. Co. Ltd., 36 James St. S., Hamilton, Approx. **$400,000.** Bids 2/28. Marani & Morris, 1250 Bay St., Toronto, archt. CD 2/17—ENR 2/24.

Que., Sherbrooke—Governors of Sherbrooke Hospital, Portland Ave., hospital, to Newton Constr. Co. Ltd., 150 Victoria St., **$895,421.** Bids 3/16, awarded 3/11. CD 2/25—ENR 3/3.

†**D. C., Wash.**—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., cancelled bids to have been opened Apr. 5, neuropsychiatric ward alterations, Army Medical Center, Walter Reed General Hospital, Serial No. 49-080-49-123 (28) M. CD 3/10—ENR 3/17.

Md., Baltimore—Mayor & City Council, City Hall, Mar. 23, 5 story, brick, steel, concrete dispensary, city hospital, from Baltimore Contractors, Inc., 711 S. Central Ave., **$544,242.** R. E. L. Williams, bldg. constr. engr. CD 3/8—ENR 3/10.

Wash., Seattle—City, County—City Bldg., Zone 4, Mar. 23, plate-steel penstock liner for Gorge powerhouse exten. on Skagit Proj., from American Pipe & Constr. Co., 518 N. E. Columbia Blvd., Portland, Ore., **$98,047.** E. R. Hoffman, city light supt. CD 12/3/46—ENR 12/12/46.

†**Alaska, College**—Pub. Bldg. Admin., 18 and F Sts., Wash. 25, D. C., 3 story, 52 x 122 ft., rein.con. geophysical institute bldg., piling fdns. and 6 houses at University of Alaska, from Lewis Constr. Co., Lowman Bldg., Seattle, Wash., 1, **$720,332.** CD 2/18—ENR 2/24.

LOW BIDDERS

●†**Tenn., Oak Ridge**—U. S. Atomic Energy Comn., P. O. Box 365, Attention Community Constr. Contract Sect., Mar. 24, general contract 343 single and duplex family dwelling units, from J. D. Leftwich Contractors, Inc., Lubbock, Tex., **$2,811,532;** roadways, sidewalks, sewers, water and gas distr. sys. and landscaping., from Burch Constr. Co., Neff Rd., Dayton, O., **$871,106.** CD 2/7—ENR 2/17.

COMMERCIAL BUILDINGS

BIDS ASKED

April 7

Que., Verdun—Rev. J. A. Gervais, cure, c/o Parish of Notre Dame de la Paix, 3445 LaSalle Blvd., 76x190 ft. concrete, rein.-con. steel church, Strathmore Ave., near LaSalle Blvd., Approx. $500,000. J. A. Dutrisac, 1069 Beatty Ave., archt. R. Fortin, 3581 Northcliffe Ave., Montreal, engr. CD 11/11.

April 8

Ont., Toronto—J. H. Haffa, 96 Bloor St. W., concrete, steel, brick, stone Saint Michaels Cathedral Choir School, Bond St., north of Shutter St., for Roman Catholic Episcopal Corp., 200 Church St., Approx. $500,000. CD 1/17—ENR 2/3.

April 12

La., Monroe—Wm. King Stubbs, archt., 102 N. Second St., 2 story educational bldg., and steel, brick auditorium, for College Place Baptist Church, Monroe.

April 18

La., Shreveport—Peyton & Bosworth, archts., 502 Continental American National Bank Bldg., 5 story, bsmnt., brick educational bldg., 500 Travis St., for First Baptist Church, c/o architects. $700,000. Plans deposit $50. Extended date. CD 2/1—ENR 2/3.

CONTRACTS AWARDED

Ill., Chicago—Evangelical Free Church, 4211 N. Hermitage St., brick, steel school addn., to Carl E. Erickson Co., 4657 N. Ravenswood St., **$300,000.** H. C. Haeuser, 2051 W. Wisconsin St., Milwaukee, Wis., archt.

Ill., Chicago—Illinois Institute of Technology, 3300 S. Federal St., 2 story, bsmnt., rein.-con., steel gas technological laboratory, to Sumner S. Sollitt & Co., 307 N. Michigan St., Chicago, **$445,000.** Awarded 3/23. CD 2/28—ENR 3/3.

Ill., Glenview—Illinois Bell Telephone Co., 212 W. Washington St., Chicago, 1 story, bsmnt., brick, concrete telephone exchange, to Lyman Constr. Co., 725 Pearson St., Des Plaines, Approx. **$478,000.** Awarded 3/21. Holabird Root & Burgee, 180 N. Wabash St., Chicago, archts.

Ind., Indianapolis—North Methodist Episcopal Church, J. W. Esterline, chn. Bldg., Com., 2 story, bsmnt., 60x180 ft., rein.-con., steel church and education bldg. addn., N. Meridian St. near 38 St., to Leslie Colvin, 507 Bd. of Trade Bldg., Approx. **$400,000.** Awarded 3/21. Burns & Jones, 824 Architects & Builders Bldg., archts. CD 4/9/45—ENR 4/19/45.

Md., Baltimore—Monumental Homes Corp., 205 Davis St., thirty 2 story, 15x26x28 ft. and ten 2 story, 23x26x28 ft. brick houses, 3200 block Brendan Ave. near Belair Rd., to Century Constr. Co., 5 Davis St., **$280,000.** Wm. Gordon Beecher, 4420 Roland Ave., archt.

Proposal Advertisements see pp. 101, 102 & 119

OFFICIAL PROPOSALS

RATE: THE RATE FOR OFFICIAL PROPOSAL ADVERTISING IS $1.00 PER LINE (OR FRACTION) PER INSERTION.

COPY RECEIVED UP TO 3:00 P. M. FRIDAY FOR ISSUE OUT FOLLOWING THURSDAY SUBJECT TO SPACE OPEN FOR LAST MINUTE ADS

SEND COPY TO OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 18, N. Y.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2617) will be received by Bureau of Reclamation, Denver, Colorado, April 21, 1949, and then publicly opened for furnishing ten 72-inch diameter flap gates for Wellton Mohawk Canal, Gila Project, Arizona. Delivery is desired within 180 days. For particulars, address Bureau of Reclamation, Building 1-A. Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.

(948)

Public Roads Administration, Federal Works Agency, March 16, 1949. SEALED BIDS will be received at the office of the Division Engineer, Public Roads Administration, 1440 Columbia Pike, Arlington, Virginia, until 10:00 a.m., E.S.T., April 12, 1949, for Project 1F3, Blue Ridge Parkway, Amherst and Rockbridge Counties, Virginia. Reinforced Concrete Structure with Stone Facing, Grading and Surfacing of Approaches—Length 0.163 miles. The approximate quantities of the more important items are 24,710 Cu. Yd. Excavation, 250 Cu Yd. Concrete and 566 Cu. Yd. Stone Masonry. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 or certified check made payable to the Treasurer of the United States, will be required to insure their return within 15 days after the opening of bids. Plans, Specifications and Proposal forms may be obtained at the address given above, or at Public Roads Administration, 410 State and City Office Building, Roanoke, Virginia. H. J. Spelman, Division Engineer.

(950)

Public Roads Administration, Federal Works Agency, March 21, 1949. SEALED BIDS will be received at the office of Public Roads Administration, Gatlinburg, Tennessee, until 1:30 p. m., EST., April 19, 1949, for the construction of Project 3B5, 6, 7, 8, 9, Great Smoky Mountains National Park, Blount County, Tennessee. Five Reinforced Concrete and Stone Masonry Bridges with approaches; length 0.309 miles. The approximate quantities of the more important items are as follows: 10,200 cu. yd. Excavation, 472 cu. yd. Cement Concrete, and 2,016 cu. yd. Stone Masonry. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10 cash or certified check made payable to the Treasurer of the United State will be required to insure their return within 15 days after opening of bids. Plans, specifications and proposal forms may be obtained from the office of the Division Engineer, 1440 Columbia Pike, Arlington, Virginia, or from the address given above. H. J. Spelman, Division Engineer.

(951)

OFFICIAL PROPOSALS

Bids: (954)

Notice of Correction

The Official Proposal for Paving and Other Construction, Broome County Airport, Broome County, New York was published in the March 17, 1949 Engineering News Record on page 352. This advertisement indicated in the seventh paragraph that "Envelopes containing bids must be sealed and marked as follows: Bids for Paving and other Construction for Broome County Airport to be opened at 11:00 A.M. Eastern Standard Time, April 5, 1949: This date should have read April 18, 1949.

OFFICIAL PROPOSALS

Bids: April 11, 1949 (938)

Electrical Substation

Sealed proposals for the construction of an electrical substation and kindred equipment and an electrical voltage transformation bay for the Electric Plant Board of the City of Hopkinsville, Kentucky, will be received by the Superintendent and Board of Directors of the Electric Plant Board at their office until 3:00 P. M., C.S.T. on the 11th day of April, 1949, and will be immediately opened and publicly read.

Copies of the proposal, contract documents, drawings and specifications may be obtained from the office of Allen & Hoshall, Consulting Engineers, 65 McCall Place, Memphis, Tennessee. A charge of $25.00 will be made for each set of drawings and documents. Checks will be made payable to Allen & Hoshall. The entire payment will be refunded within ten days after the bids are opened, if a bona fide bid is tendered and specifications and plans returned in good condition, to all except the successful bidder.

A set of specifications and plans may be examined free of charge at the office of Allen & Hoshall, and at the office of Mr. A. Wettstein, Superintendent of the Electric Plant Board, Hopkinsville, Kentucky.

Each bid must be accompanied by a certified check, or a bid bond executed by the Bidder and a Surety Company licensed to operate in Kentucky, in the sum of 5% of the amount of the bid. The bond is requested as a guarantee that if the bid is accepted, a contract will be entered into and the performance of it properly secured. The successful bidder will be required to execute a performance bond.

Proposal forms must be properly filled out and must not be detached from the specifications. No riders shall be attached thereto or alterations made therein.

All bidders must have complied with the current State of Kentucky laws covering Contractors and be licensed accordingly. Bidder's name and license number must be placed on the envelope containing the bid documents.

***WAGES:* Wage rates meeting National and State laws shall be paid on this project.**

***WITHDRAWAL OF BIDS:* Unless contrary to statutes of the State of Kentucky, including local charter provisions, no Bidder may withdraw a bid submitted for a period of thirty days after the date set for the opening of such bids.**

The right is reserved to reject any or all bids, and to waive informalities therein.

A. Wettstein, Superintendent
Electric Plant Board of the
City of Hopkinsville
Hopkinsville, Kentucky

Bids: April 12, 1949 (953)

Construction of Facilities for Boston Approach

MYSTIC RIVER BRIDGE AUTHORITY
Suite 325-328. Six Beacon Street
Boston 8, Massachusetts

NOTICE TO CONTRACTORS: Sealed bids or proposals for Contract No. 10 will be received by the Mystic River Bridge Authority at its office, Six Beacon Street, Boston 8, Massachusetts, until 12 noon, Apr. 12, 1949, and at that time publicly opened and read. The work to be done consists of the construction of facilities for the Boston approach of the Mystic River Bridge. Plans and specifications may be obtained at the office of Charles A. Maguire and Associates, 46 Cornhill, Boston 8, Massachusetts, or J. E. Greiner Company, 1201 St. Paul Street, Baltimore 2, Maryland, on payment of $10.00 which is not returnable. Proposal guaranty shall consist of a certified check for twenty thousand dollars ($20,000.00) payable to the order of Mystic River Bridge Authority. The successful bidder will be required to furnish a bond for the faithful performance of the contract in the full amount of the contract. Attention is called to the minimum rate of wages to be paid on the work as determined by the Commissioner of Labor and Industries under the provisions of Chapter 461 of the Acts of 1935. Complete information may be obtained from the Authority. Right is reserved to waive any informality in or to reject any or all proposals. A bid which includes for any item a price abnormally high or low may be rejected as unbalanced.

MYSTIC RIVER BRIDGE AUTHORITY
By Ephraim A. Brest, Chairman
Date, Mar. 23, 1949.

OFFICIAL PROPOSALS

Bids: April 18, 1949 (952)

Boundary Fence for Northeast Area

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA—57

Sealed proposals for the erection of a boundary fence for the northeast area at New York International Airport, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 11:30 o'clock on the morning of Monday, April 18, 1949, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10.00 per set. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman,
Chairman
New York, March 31, 1949.

(Continued on page 102)

Official Proposals Columns
of
ENGINEERING
NEWS-RECORD
are MUST reading, each week, for contractors, engineering-construction companies, equipment and materials manufacturers, all over the United States.
. . . and used regularly for over 50 years by government, state, county and municipal departments for advertising bids.
Official Proposal Division
ENGINEERING NEWS RECORD
Address: New York 18, N. Y.

(Continued from page 101)

Bids: April 26, 1949 (943)

Supply and Distribution Mains and Appurtenant Work

CONSTRUCTION OF EARTH DAM
LAYING CAST IRON PIPE
THE BOARD OF SUPERVISORS OF
AUGUSTA COUNTY, VIRGINIA
STAUNTON, VIRGINIA

Sealed Proposals will be received for the work listed below by The Board of Supervisors of Augusta County, Va. at their office in Staunton, Virginia until 10:00 A. M. on the 26th day of April 1949, up to the hour of opening bids, at which time and place all bids will be publicly opened and read aloud. Bids will be received on the following contracts:

CONTRACT NO. 1 — EARTHWORK — Construction of an earthen dam with compacted core of selected material approximating 85,000 cu. yds. of total earthwork; rock excavation of spillway channel approximating 1200 cu. yds. and appurtenant work.

CONTRACT NO. 2 — STRUCTURAL STEEL—Construction of Intake Structures, Blow-off Conduits, Spillway Gates and appurtenant Structures.

CONTRACT NO. 3—PIPE WORK—Laying cast iron pipe, supply and distribution mains in the following approximate quantities:

18,000 lin. ft. of 10" pipe
28,000 lin. ft. of 8" pipe
30,000 lin. ft. of 6" pipe

The Information for Bidders, Bid Form, Form of Contract, Plans and Specifications may be examined at The Office of The Board of Supervisors or at The Office of The Engineer, Echols Building, Staunton, Virginia. Copies thereof may be obtained from The Engineer, John S. Hale, P. O. Box 961, Staunton, Va. upon payment of $20.00 per set for any one contract or $50.00 for full set for all three contracts. Any Bidder upon returning such set promptly and in good condition, will be refunded his payment and any non-bidder upon so returning such set will be refunded one-half of his payment.

The successful bidder will be required to furnish a satisfactory performance bond in the amount of 100% of his contract.

The right is reserved by The Board of Supervisors to reject any or all bids or to accept any considered advantage to The Board of Supervisors. Certified check, cash, bidders bond or bank draft payable to The Board of Supervisors or a satisfactory Bid Bond executed by the Bidder and a Surety Company in an amount equal to 10% of the bid, shall accompany the proposal.

No bid may be withdrawn after the scheduled closing time for the receipt of bids but bids may be withdrawn at any time prior to the scheduled time for opening bids.

John S. Hale,
Consulting Engineer
South River Sanitary District,
Staunton, Virginia

Bids: April 19, 1949 (944)

Bridge

BOARD OF KNOX COUNTY COMMISSIONERS
COURT HOUSE
KNOXVILLE, TENNESSEE

NOTICE IS HEREBY GIVEN that sealed proposals will be received by the Board of Knox County Commissioners at the Court House, Knoxville 42, Tennessee until 10:00 A.M., E.S.T. Tuesday, April 19, 1949 for the construction of the following project. Proposals will be OPENED and read publicly by the Commission at the above address immediately after the hour set for receiving bids.

This contract comprising: furnishing materials and constructing substructure, roadway and sidewalk slabs, and the two reinforced concrete approach spans of 333 foot total length; and erecting structural steel truss continuous over two supports and composed of a 200 foot main span and two 160 foot anchor spans, all for Boyd Bridge over the Holston River on Strawberry Plains Pike just outside Knoxville, Tennessee at Holston River mile 1.9.

Full information, proposal forms, special provisions and plans are available at the office of Patchen and Zimmerman, Engineers, Daniel Field Airport, Augusta, Georgia. A deposit of $25.00 is required for each proposal and set of plans issued. It is requested that the proposal and plans be returned and the original deposit will at that time be promptly refunded. Requests for proposal and plans must be accompanied by cash, cashier's check, certified check, post office or express money order made payable to the Board of Knox County Commissioners, Knoxville, Tennessee, and shall be addressed to Patchen & Zimmerman, Engineers with explicit instructions for mailing or delivery direct to the Contractor. A deposit of $1.50 with no refund is required for each copy of the General Specifications which are *Standard Specifications for Road and Bridge Construction Adopted by the State of Tennessee Department of Highways and Public Works on January 1, 1938.* Requests for the General Specifications shall be sent to the Tennessee Department of Highways and Public Works, War Memorial Building, Nashville, Tennessee, Attention: Mr. L. M. Means, with a statement that they are for use on this project.

Board of Knox County Commissioners
W. W. Luttrell, Chairman
T. P. Lawson, Secretary

Bids: April 14, 1949 (945)

Recreation Pier

Sealed bids will be received by the City Manager of the City of Pensacola, in his office in the City Hall, until 10:00 A. M. April 14, (Thursday) 1949, and then and there be publicly opened and read for:

CONSTRUCTING MUNICIPAL RECREATION PIER CONSISTING OF STEEL BULKHEAD, FILL, SIDEWALK AND STREET PAVING.

Plans and Specifications may be secured at the City Engineers office by depositing ten dollars ($10.00) all of which will be returned to bona fide bidders upon return of the plans in good condition.

Award will be made to the lowest responsible bidder.

The right is reserved to reject any or all bids, or to readvertise.

The right is reserved to award the contract on the basis of any proposals that the City Council may determine as being for the best interest of the City.

A certified check or bid bond in the amount of five percent (5%) of the bid price will be required with each proposal.

OLIVER J. SEMMES, JR.
CITY MANAGER

ATTEST:
J. E. FRENKEL
CITY CLERK-COMPTROLLER

Bids: April 29, 1949 (946)

Sewerage System and Treatment Plant

The Municipal Authority of the Borough of Mechanicsburg, Penna.

Sealed proposals will be received at the Municipal Building, Mechanicsburg, Penna., until 2:00 P.M., E.S.T. April 29, 1949 for furnishing all necessary labor, materials and equipment, and performing all work for the construction of a Sewerage System and a Sewage Treatment Plant and appurtenances, and will there be publicly opened and read at that time. Separate proposals will be received upon two parts of the project as follows:

Sewerage System—including 82,000 lin. ft., 8" to 18" vitrified sewers; 20,700 lin. ft., 6" vitrified sewer house connections; 340 manholes and other appurtenances.

Sewage Treatment Plant—including Control Building, Primary and Secondary Clarifiers, Primary and Secondary Biofilters, Recirculation Pumping Station, Chlorine Contract Tank, Sludge Digester, Sludge Drying Beds, Roads, Fencing and Specified Equipment and Appurtenances.

Proposals shall be accompanied by certified checks in accordance with the provisions contained in the Specifications and in the following amounts:

Sewerage System—$30,000
Sewage Treatment Plant—$10,000

Copies of the Contract Documents, Plans and Specifications may be obtained from Gannett Fleming Corddry and Carpenter, Inc., Consulting Engineers, 600 North Second Street, Harrisburg, Penna., upon deposit of the following amounts for each set:

Sewerage System — Twenty Dollars ($20.00)

Sewage Treatment Plant—Fifteen Dollars ($15.00)

Full refund will be made to actual bidders for return of one set in good condition within ten days after closing date for receipt of bids; refund for return of all other sets, in good condition within the same period, will be fifty per cent of the deposit.

Gannett Fleming Corddry &
Carpenter, Inc., Engrs.
600 North Second Street
Harrisburg, Penna.

The Municipal Authority of the
Borough of Mechanicsburg,
Penna.

Bids: April 26, 1949 (942)

Settling Tanks, Control Chamber, Digestion Tanks and Appurtenances

INVITATION TO BIDDERS

Office of the City Engineer
501 Hall of Records
New Haven, Conn., March 18, 1949.

SEALED PROPOSALS will be received at Room 505, Hall of Records, until 2 P. M., April 26, 1949.

and then publicly opened and read, for the construction of the settling tanks, control chamber, digestion tanks and appurtenances, designated as Contract #2 of the East Shore Sewage Disposal Plant.

Copies of the plans, specifications and other contract documents may be examined at the Office of the City Engineer, Room 501, Hall of Records, 200 Orange Street, New Haven, Conn.

Plans, specifications and proposal form may be obtained at the above office. A payment of twenty-five ($25.00) dollars, payable to the Controller of the City of New Haven, Conn., will be required for each set of plans and/or specifications taken from the above office. The entire payment will be refunded if a bid is submitted and the plans and/or specifications are returned in good condition on or before May 16, 1949. Where no bid is submitted and the plans are returned on or before the date hereinbefore specified, only one-half the entire payment shall be returned.

Extra copies of specifications may be obtained at the cost of five ($5.00) dollars each, and extra sets of plans may be obtained at the cost of fifteen ($15.00) dollars each, which sums will not be refunded.

Each proposal must be accompanied by a Consent of Surety from an approved Surety Company and by certified check for five (5) per cent of bid made payable to the Controller of the City of New Haven.

The successful bidder will be required to furnish a bond for the faithful performance of the contract in a sum not less than one hundred (100) per cent of the total price bid for the completed work, said bond to be that of an approved surety company authorized to transact business in the State of Connecticut. The bond shall be purchased through a surety company with a local agent upon whom service of process can be made.

Each proposal must be made upon the blanks furnished with the contract documents, and it must be delivered at the Office of the Director of Public Works of the City of New Haven in the Hall of Records previous to 2 P. M. on the day above specified.

A corporation not chartered under the laws of the State of Connecticut but licensed to do business in the State of Connecticut (if submitting a bid) must submit with said bid an affidavit duly executed by the President, Vice President, or General Manager of the Corporation, stating in said affidavit that said Corporation has, in accordance with the laws of the State of Connecticut, obtained a certificate authorizing it to do business in the State of Connecticut.

The City reserves the right to reject any and all bids, to waive any informalities or irregularities in the bids received, and to accept any bid which is deemed most favorable to the City of New Haven at the time and under the conditions stipulated.

By order of the Director of Public Works.

W. Vincent Barry
City Engineer

(Continued on page 119)

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:

(Not available for equipment advertising)

$1.20 cents a line, minimum 4 lines. To figure advance payment count 5 average words as a line.

INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.00 a line an insertion.

INFORMATION.

BOX NUMBERS care publication New York, Chicago or San Francisco offices count as 1 line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:

The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured 7/8 inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

NEW ADVERTISEMENTS received by March 5th appear in April 14th issue subject to limitations of space available.

WANTED

Civil Engineer or Supervising Contractor

To close and contract licenses with installers, contractors and applicators of special rubberized bituminous materials in great demand for buildings, roads, sewage disposal plants, etc.

Patents have been granted; grantee has pioneered in the construction field for over 30 years.

Commissions on sales either through your own specifications or effort, or dealer sales will be paid in the territory. Commissions remunerative and continuous. State territory you can cover; also do you specify materials on certain construction work.

RUBBERIZED OIL PLASTICS
(Not Inc.)
6049 W. 65th St. Chicago 38, Ill.

Large insurance company has opening for

ENGINEERING CONSULTANT

in connection with its Mortgage Loan and Real Estate Department. Must have knowledge and experience in construction of commercial buildings and be conversant with costs and appraisal methods. Give complete details including education, experience, salary, age and photo. Reply

P-8197, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

CONSTRUCTION EXECUTIVE

Reputable Building Organization, location New York, seeks services of experienced man as Assistant to the President. Background must definitely indicate knowledge of estimating, purchasing, general supervision, and administrative ability. College degree desirable, but not essential. Age limit, 45 years. Reply in full confidence, giving complete details and earning ability for past five years. Enclose snapshot, not returnable.

P-8229, Engineering News-Record
330 West 42nd St., N. Y. 18, N. Y.

WANTED

FOR EXTENSIVE HIGHWAY PROGRAM EXPERIENCE STRUCTURAL DESIGNERS DETAILERS, DRAFTSMEN AND EXPERIENCED HIGHWAY DESIGNERS AND DRAFTSMEN. ALSO RECENT CIVIL ENGINEERING GRADUATES FOR ABOVE. LONG ESTABLISHED FIRM—LOCATION PENNSYLVANIA.

P-8394, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

WANTED—Mechanical and Structural Engineers For designing and detailing work on concrete reinforcement, structural steel and hangar door construction. Requirements are three to four years practical experience or recent graduation from technical school. Desirable working conditions and opportunities for advancement. These openings are with a nationally known steel fabricating company, located in eastern Ohio. Applicants will please submit a record of their qualifications.

P-7737, Eng. N-R, 520 N. Mich. Ave., Chicago

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED—ENGINEERS, Architects, Draftsmen experienced in the design of sewers, sewage treatment plants, water treatment plants and industrial buildings. Also engineers to supervise construction. State qualifications, experience, salary requirements and date available. P-1155, Engineering News-Record.

STRUCTURAL DETAILERS—Checkers. Paid holidays. Vacation. Ralph Rinker, 572 Bellevue Ave., Trenton 8, New Jersey.

WANTED, SEVERAL engineering graduates, under 35, by large industrial fire prevention organization maintained by leading insurance group. Permanent position. Periodic inspections and special consulting service for leading industrial plants. Thorough training. P-8063, Engineering News-Record.

WANTED: TESTING Engineer, experienced in laboratory and field testing of construction materials particularly concrete, asphalt paving and soils. P.E. license desirable. Location Ohio; position permanent. State age, education, experience and salary. P-8293, Engineering News-Record.

STRUCTURAL STEEL Designer and Estimator wanted by leading central west fabricator. Permanent position and good opportunity with large well established and growing company. Please state qualifications, past experience and salary requirements. P-8386, Engineering News-Record.

EXPERIENCED REINFORCING steel estimator. Permanent employment. In reply give experience, age, etc. Robberson Steel Company, Box 1675, Oklahoma City, Okla.

SALES ENGINEER With engineering or architectural training. Experience in sales and estimating of reinforcing bars and steel windows preferred. Location Southeast. State: salary, age, experience, availability and enclose recent snap shot. Southern G F Company, 263 Decatur St., S. E., Atlanta, Georgia.

TEACHERS WANTED:—Instructor and Assistant Professor of Civil Engineering, for September, 1949. General Civil Engineering subject including hydraulics and sanitary engineering. Pennsylvania college. P-8526, Engineering News-Record.

POSITIONS WANTED

BUILDING: PROJECT or Construction Manager also General Superintendent; 30 years experience full charge of large projects, years actual experience cost clerk; estimator; purchasing; closing; manager; general and job superintendent; all types of structures and allied construction all kinds of contracts. PW-8198, Engineering News-Record.

(Continued on page 104)

WANTED BY

LEADING MANUFACTURER OF EXCAVATING MACHINERY

Young ambitious man with Civil Engineering training and some field experience in excavation work to learn our business. To the qualified man this will mean a permanent position with excellent possibilities with this long established Chicago concern. Write giving complete details.

P-8334, Engineering News-Record
520 North Michigan Ave., Chicago, Ill.

WANTED MAY 1ST

Engineering Graduate, qualified to direct aggregate production in Northwest in connection with large dam project. Deposit located 60 miles from town of any consequence. Must be aggressive and able to supervise project accounting, purchasing, and labor relations. Right man can be built up with this experience as valuable asset to our organization. Write

P-8377, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

MAN WANTED

SALES ENGINEER

For selling and promoting asphalt construction and materials. Permanent position and excellent opportunity for right man. State qualifications and references.

SW-8369, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ESTIMATOR

Wanted by expanding concern doing underground power, telephone conduit, water and gas main construction in Boston, Mass. Experienced man preferred. Permanent position. Excellent opportunity for right party. State qualifications, exp., age, former employers references and salary req.

P-8489, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

GRADUATE ENGINEER

For layout, structural design, specifications and estimating on bridge and grade separation work. Permanent. Private firm. New Orleans. State qualifications and experience in detail, salary desired and when available.

P-8463, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SALESMAN

with established following for prominent lumber yard to contact general contractors in New York City. Must be real go-getter, capable of producing substantial business. Write stating age and past connections (confidential).

SW-8509, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

SALESMEN WANTED

Old line construction and industrial machinery distributor desires one or possibly two salesmen for established territory in Kentucky. Give experience, age, educational background with full particulars.

SW-8345, Engineering News-Record
520 North Michigan Ave., Chicago 11, Ill.

A COURSE OF INSTRUCTION BY MAIL IN
STRUCTURAL ENGINEERING
Thirty-ninth Year

(In the following list, Courses A, B, and C are abbreviated from our complete Structural Engineering course).

- **A—Public Works Structures.**
- **B—Architectural Engineering.**
- **C—Special Course (State Board Exams. for P.E.)**
- **D—Structural Engineering (complete).**
- **E—Preparatory Course (for non-technical men).**

Our courses have helped thousands of men to better positions. Information sent without obligation. WRITE TODAY

WILSON ENGINEERING CORPORATION
College House Offices • Harvard Square • Cambridge, Mass., U. S. A.

SALARIED POSITIONS $3.500—$35.000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (39 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N.Y.

(Continued from page 103)

POSITIONS WANTED

SUPT. WATER Works—Extensive experience in operation and maintenance of water plants and distribution systems. Especially successful in chemical treatments, filtration, improvements in distribution systems, chemical, physical, bacteriological and microscopical examinations of waters of all types. Education B.S. in chemical engineering with 12 years of active experience with plants of all sizes. Interested in position with medium sized city, 80,000 to 200,000 population. Available after April 1st. PW-8270, Engineering News-Record.

LANDSCAPE ENGINEER, 29, B.S. in Landscape Architecture. Experience planning, survey layout, and development of parks, house and apartment developments. Little or no travel desired. Location immaterial. PW-8365, Engineering News-Record.

CIVIL ENGINEER, Registered. Experienced design and construction chemical plants, oil refy., plant layout, drydocks, piers. Capable office man. Domestic or foreign. Available immediately. PW-8196, Engineering News-Record.

PARTY CHIEF, Designer, Instrument man wants position as assistant county or city engineer, or with consulting engineer or contractor. PW-8223, Engineering News-Record.

GENERAL SUPERINTENDENT or Superintendent available. 25 years. Broad experience supervising and estimating. All types of paving, heavy-excavating, large-sewers, water and gas main construction air-ports, earth-fill dams, many other classes of construction. Cost conscious, prefer middle west or west. Sober, honest, reliable, best references. PW-8212, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, over 15 years experience in commercial, industrial, and governmental work. Excellent references. PW-8317, Engineering News-Record.

CIVIL STRUCTURAL Engineer, registered. Design and fabrication background. Available for supervising position only. PW-8298, Engineering News-Record.

CONTRACTORS ASSISTANT, Chief Estimator desires permanent connection with General Construction Company. Considerable experience in managing contracts covering buildings, bridges, waterworks etc., under highly competitive conditions. PW-8297, Engineering News-Record.

CIVIL ENGINEER—Graduate, Registered, age 39, desires connection with construction or engineering firm in supervisory capacity. Wide experience in general construction, principally industrial buildings and facilities. Interested in position of responsibility. PW-8356, Engineering News-Record.

PLANT ENGINEER, M.E., Graduate; married, age 30, 30 months plant engineer, job estimating, maintenance, plant construction, production surveying. 5 years air craft and engine maintenance. Desire permanent position. PW-8333, Engineering News-Record.

SUPERINTENDENT INDUSTRIAL buildings, water treatment and sewage plants, heavy foundations, hangars and timber structures. Moderate salary, available at once. PW 8493, Engineering News-Record.

POSITIONS WANTED

CIVIL ENGINEER, 20 years experience in bridges, highways, sewers, airports; design, construction and administration. Desires permanent position. Mid-West preferred. PW-8408, Engineering News-Record.

CONSTRUCTION — ESTIMATOR — Superintendent—15 years experience—compile complete bids — pricing — purchasing — industrial —commercial work. Florida or Georgia preferred. Available. PW-8426, Engineering News-Record.

CONSTRUCTION OFFICE Man (accountant) 40, full charge books. Completely competent payroll, purchasing, cost and storehouse records. Best references. Anywhere. J. J. Quirk, 433 101st Street, Brooklyn, N. Y.

FIELD ENGINEER—age 40, 20 years experience in layout and construction of large industrial plants, highways and bridges. Available immediately. Domestic or foreign. PW-8415, Engineering News-Record.

PROJECT MANAGER or General Superintendent with broad managerial experience in heavy construction. Have well trained organization. Available about April 1st, domestic or foreign assignment. PW-8405, Engineering News-Record.

CONCRETE SUPERINTENDENT: 28 years in concrete field. Aggregate, batch and crushing plants. Producing 200 to 900 yds. daily. Thoroughly experienced in all phases of concrete. Foreign position preferred. PW 8447, Engineering News-Record.

SUPT. OR Assistant, shaft, tunnel, dam; quarry, sewer, tunnel, mine, shaft pit, rock specialist. Speak Spanish. Central South America. PW 8372, Engineering News-Record.

ESTIMATOR—EXPERIENCED general contractor's estimator, familiar with all types of buildings—accurate quantity surveys—good knowledge of prices—experienced compiling sub bids, and job running. PW 8454, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, capable master mechanic with 20 years experience all types of industrial, power plants, deep foundations, organizing. Good labor relations, desires position, Canada or U. S. PW 8479, Engineering News-Record.

BUILDING: PROJECT Manager-graduate Civil Engineer — licensed in several states — 25 years' experience building contracts of all types and similar structures—excellent estimator, purchasing, subletting, coordinator—midwest or east. Permanent position. PW 8492, Engineering News-Record.

MAN FRIDAY, 15 yrs. exp. field and office. Piling, rough carpentry, R.R. track, excavation, concrete, and housing fdtns. Capable all details, accurate, thorough. Present location N.Y.C. PW-8525, Engineering News-Record.

PROJECT AND Office Engineer, age 35, will exchange 13 years varied experience in heavy and industrial construction, design and estimating for responsible position that will allow permanent headquarters. Qualifications include Civil Engineering Degree, Professional Registration, and several years in responsible charge of major work. Highest references can be furnished. Available on reasonable notice. Salary commensurate with position, but a minimum of $7500 per annum required. No foreign assignment considered. PW-8517, Engineering News-Record.

(Continued on page 105)

LEARN TO ESTIMATE

Today, more than ever before, you must know how to analyze building costs. If you want to become a successful builder, learn how to prepare a correct estimate in a hurry. Get in on the profitable work now available wherever you turn. Your success is assured if your estimates are right; otherwise you are licked before you start.

The Tamblyn System of Estimating will make a real estimator out of you in a few weeks of your spare time. We are so sure that you will want to learn it, that we will send you our complete home study course for ten days examination absolutely free. If you don't think it is the finest thing you ever saw, just return it and it won't cost you a cent. If you like it and want it, send us $8.75 when 10 days are up and $7.50 per month until $38.75 is paid.

This estimating system is based on forty years of actual construction experience. It has been sold all over the world for more than twenty years. Thousands of estimators and contractors swear by it. Our offer isn't hot air and big talk. We don't give you a diploma or a lapel button, but we do teach you down to earth estimating which will bring you profitable business.

Just send your name and address today, and we will mail you the complete course at once for your approval.

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"An Army Marches on Its Stomach"
We Have Fed Millions
KANE INDUSTRIAL SERVICE

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MINNEAPOLIS: 105 Nicollett Ph: Atl 4845.

SALE

Starting April 2nd **$200,000.00** **Starting April 2nd**

CONSTRUCTION EQUIPMENT

Late Model Caterpillar Tractors — Cranes — Shovels and Front End Loaders

AT REDUCED PRICES

Loaded on Cars or Trucks—Net Prices

- (2) D8 2U Series Caterpillar Tractors DDPCU and Angledozer
- (3) D8 2U Series Caterpillar Tractors DDPCU and Scrapers
- (1) D8 8R Series Caterpillar Tractor DDPCU and Bulldozer
- (2) D2 Caterpillar Tractors Traxson Front End Loaders
- (1) D4 Caterpillar Tractor with Hydraulic Angledozer
- (1) D7 7M Series Caterpillar Tractor with PCU and Dozer
- (1) D7 9G Series Caterpillar Tractor with PCU and Dozer
- (1) Cleveland Trencher, Model 95, with Trailer
- (3) Concrete Mixers, 1 yd. capacity
- (2) Rubber Tired Front End Loaders
- (1) P & H Truck Crane
- (1) Byers ⅜ yd. Dragline
- (1) Northwest ¾ yd. Model 25 Diesel Engine Dragline
- (3) Double Drum Power Control Units
- (1) Push Dozer
- (1) 1½ yard Clam Bucket—new
- (1) ½ yard Clam Bucket—new
- (1) ¾ yard Dragline Bucket
- Dozers for D-2, D-4 and D-6 Tractors—new
- (5) New Hydraulic Controlled Sand Spreaders

FIRST COME—FIRST SOLD

INSPECTION IN OUR YARD

The CHAS. M. INGERSOLL Co.
19930 Detroit Road • Call EDison 1010 • Rocky River 16, Ohio
CONTRACTORS EQUIPMENT

POSITIONS WANTED
(Continued from page 104)

HARD-HITTING Construction Superintendent available now; age 41; married and 2 children; good organizer; not afraid of hard work; can handle men and obtain good results; go anywhere in United States; specializing large housing projects. PW-8519, Engineering News-Record.

SUPT. SHAFT, tunnel, sewer, open, closed. Dam, quarry, general excavating rock. PW 8373, Engineering News-Record.

CIVIL ENGINEER Graduate—Registered and experienced mining engineer. Age 27. Domestic or foreign location: single, no dependents and available on short notice. PW 8480, Engineering News-Record.

GENERAL FOREMAN, shaft, tunnel, quarry, dam, sewer, close, open. General excavation rock. Speak Spanish. PW 8374, Engineering News-Record.

SELLING OPPORTUNITY WANTED

BRIDGEMEN SELL on the jobs all leather belt bags $4.50 2" Connectors tool belt with holster and snap. $5.75 sent post paid if cash with order $1.00 deposit if C. O. D. Write F. B. Foley, 8141 St, Charles Lane, St. Louis 14, Mo., Dept. E.N.R.

WANTED

Contractors desiring to do resealing work of expansion, contraction and other types of cracks in paving and monolithic construction with rubberized bituminous material ZERO-LASTIC, a compound which will maintain seal at zero degrees temperature—a lucrative contracting business. For particulars, write to:

RUBBERIZED OIL PLASTICS
(Not Inc.)
6049 W. 65th St. Chicago 38, Ill.

PART TIME WORK WANTED

STRUCTURAL ENGINEER, C.E., P.E., N. Y. state. Thoroughly experienced, for past 12 years in the design of steel, concrete and timber structures and competent to execute complete structural building designs and drawings seeking free lance work on contractual or hourly basis. PW 8439, Engineering News-Record.

SPECIAL SERVICE

Let us handle your wire rope cable splicing problems; chokers, slings, pendants, guys, etc. SS-8425, Engineering News-Record.

PATENT ATTORNEY

Patent Practice before U. S. Patent Office. Validity and infringement investigations and opinions. Booklet and form "Evidence of Conception" forwarded upon request. Lancaster, Allwine & Rommel, Registered Patent Attorneys, Suite 454, 815-15th Street, N.W., Washington 5, D. C.

BUSINESS OPPORTUNITY

Wanted — Contact with experienced and reliable concern who might be interested in driving a RR tunnel as a sub-contract in W. Virginia. BO-8529, Engineering News-Record.

SUPERINTENDENT of CONSTRUCTION

Thoroughly experienced General building, Hospitals, Heavy construction, Reinforced concrete, Estimating and Purchasing. Would consider a financial interest after a trial period. Reg. Professional Engineer. Mem. ASCE.
Only Reliable Contractors considered.

BO-8328, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

PARTNERSHIP AVAILABLE

with established General Contractor N. Y. City. Technical knowledge not essential. State financial qualification. Confidential.

BO-8528, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

Additional Auction Advertisement on page 106

FOR SALE
CONSULTING ENGINEERS
PRACTICE AND EQUIPMENT

Largely Municipal In Pacific Northwest

BO-8446, Engineering News-Record
68 Post St., San Francisco 4, Calif.

FOR SALE

Contracting business, road building, land clearing, excavating, etc.
Completely equipped with good machinery, now operating.

Write P. O. Box 713 Little River Sta.
Miami, Fla.

Two 1948 Mack Trucks L. J. X.
Dump Trucks Practically New.

MICHAEL SIRAVO
97 Commodore St. Providence, R. I.
Phone DExter-7166

FOR SALE

Caterpillar 12, Motor Patrol 9K2846	$5,750.00
Caterpillar D-4, Hilift, 1155 Hours	4,950.00
Caterpillar D-2, Hilift, 927 Hours	3,200.00
Caterpillar 7M4396, with Bulldozer	5,750.00
International T-9, with B.E. Hilift	4,150.00
Adams 412, Motor Patrol Diesel	3,650.00

AL FISHEL
717 So. Vandeventer St. Louis, Mo.
Phone: Franklin 1750

FOR SALE

2—50 KW-3 Phase, 60 cycle 220 volt Superior 6-cylinder Diesel Generator Sets complete with 24 volt Starters & Generators, mounted on heavy Steel frame, condition equal to new.

Priced low for quick sale.

HARLAND G. RICE, INC.
880 River Road Edgewater, N. J.

PUBLIC AUCTION

$500,000 WORTH OF ROAD CONSTRUCTION EQUIPMENT

This huge liquidation sale is scheduled for Tuesday, April 12th, 1949, 10:00 A.M. at Avinger Field (Sweetwater Municipal Airport) 3 miles west of Sweetwater, Texas, off Highway 80. Equipment will be sold in piecemeal lots, to highest bidders, subject to confirmation by owners. Equipment includes Asphalt Machinery, Compressors, Concrete Mixers, Crushing and Screening Plants, Dozers, Graders, Maintainers, Power Plants, Pumps, Rollers (Sheepsfoot & Pneumatic), Rotary Brooms, Scrapers, Shovels, Tractors, Trailers (Low-Boy, Semi-, and Tandem types), Trucks, and Welders . . . all best brands such as Allis-Chalmers, Austin-Western, Bucyrus-Erie, Caterpillar, Galion, G.M.C., Hobbs, International, LaPlante-Choate, LeRoi, LeTourneau, Schramm, Waukesha, & Westinghouse. Also Airplanes, Office Equipment, Shop Equipment, & Tool Houses. Terms of sale—Certified Checks or Cash. Complete descriptive folder available on request.

WRITE—WIRE—PHONE

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909 Praetorian Bldg.
DALLAS TEXAS
Telephone Prospect 7-2148

FOR SALE

BLACK TOP PLANT

CEDAR RAPIDS MODEL F PORTABLE

For hot or cold mixes, 3,000 tons old Operates on diesel power and gasoline. Complete with 3—10,000 gal. storage tanks: 1—6,800-gal. naphtha tank. Naphtha and asphalt pumps. Complete dust collector. Steam jacket pipe and all necessities for quick set-up. For complete details write or phone

York Bituminous Corp.
York, Pennsylvania
Phone—York—6648

FOR SALE OR RENT

Model 37-B 1½ yard Bucyrus-Erie diesel shovel; crane and dragline attachments also available.
D-7 Caterpillar tractors.

FRANK SWABB EQUIPMENT CO., INC.
Hazelton, Pa. Phone 4910

P & H TRENCH HOE

(Model 150-½ Yard)

Rebuilt last year—100 HP Ford V-8 Engine—Splendid Shape—Ready to go to work—This is a real buy.

WALTON EQUIPMENT CO., INC.
39 Cortlandt St. New York 7, N. Y.

SURVEYING INSTRUMENTS

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SPECIALIZED REBUILDING

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All makes and models expertly repaired in modern shop All work guaranteed

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Precision work guaranteed.

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Brand New & Rebuilt

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Fully equipped modern shop—all makes and models repaired — all work guaranteed — instruments rented

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SURVEYING INSTRUMENTS REPAIRED

Send your transits and levels for complete overhauling and reconditioning by experienced factory-trained mechanics. Examination and estimates without cost. Your instrument should be sent express prepaid for a prompt repair estimate.

J. H. WEIL & CO.
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TRANSITS AND LEVELS

New or Rebuilt Sale or Rent

Headquarters for REPAIRS — any make — Factory Service. We will also *buy* your old instruments or *take* them in *trade*.
A complete line of Engineering Instruments and Equipment for field or office. Write for catalog N.R.-93

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NEW • REBUILT

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Patterns to suit every surveying need.

W. & L. E. GURLEY
Union Plaza, Troy, New York

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69 Dey St., New York

L.B.SMITH INC.

OFFERS

AIR COMPRESSORS

Worthington two-stage, water cooled, vertical 250#, 60 CFM, new condition.

Gardner-Denver, 105 foot, with air receiver, hose reel, driven by power take-off and mounted 1941 Ford.

Gardner-Denver air-cooled 105 foot with receiver, V-Belt driven from power take-off and mounted on 1942 Ford chassis with Wood two-yard dump body.

Gardner-Denver two-stage 160 ft., skid mounted.

Worthington 210 cubic foot, two-stage air-cooled, on steel wheels with Hercules diesel.

Chicago Pneumatic 210 cubic foot, two-stage, air-cooled, Caterpillar diesel on four rubber tired wheels.

Gardner-Denver 315 cu. ft. two-stage, skid mounted, Murphy four-cylinder diesel.

Pennsylvania 12" x 10" class 3A single cylinder, 355 cubic foot P.D., flat belt driven, 50 HP slip ring motor.

QUARRY EQUIPMENT & BINS

New 16 x 16 double clamshell gates.

20" x 6'6" Belt Type Magnetic Separator.

Practically new Jeffrey type VS, 28'6" centers, bucket elevator, 6x4 buckets, belt mounted, fully enclosed, can extend to 80'.

Link-Belt style 146 vertical centrifugal discharge bucket elevator, belt type, fully enclosed, extendable to 65'.

18 x 36 Farrell deep jaw crusher, with McLanahan 3' x 7' roll type feeder.

10 x 20 Champion No. 4½ primary jaw crusher

10 x 7 Allis Chalmers Blake type jaw crusher.

Williams 20-S pulverizer.

Cedarapids No. 1 Kubit.

36x36 Jeffrey Flextooth pulverizer.

100 ton 3 compartment storage or aggregate bin with or without batcher and scales.

60 ton 2 compartment storage bin with clam shell gates

ELECTRIC MOTORS

New & Rebuilt—All Sizes
3 to 125 HP in stock
Open and Totally Enclosed

TRUCKS—TRAILERS

1½-ton Ford & Chevrolet.

2½-ton GMC. New and rebuilt.

Van Trailers with 17'x7'8"x6' bodies. Five ton capacity.

2,000 gallon tanks on semi-trailer mounting.

New and rebuilt dump bodies.

DIESEL GENERATORS

7½ KW to 125 KW. Alternating and direct current.

SHOVEL

Osgood 1¾-yd diesel powered shovel with 23' boom, 17' dipper stick, 1¾-yd dipper D13000 diesel engine. Excellent condition.

GASOLINE AND DIESEL ENGINES

New JXD Hercules Gasoline.

Buda, Hercules, Hill diesels, rebuilt.

New Murphy 4 and 6 cylinder diesels.

GM 6 and 12 cylinder diesels, practically new.

New Cummins 6 cylinder diesels for Euclids.

SHOVEL ATTACHMENTS

Lorain 30A chain crowd, LBS#5142, 16' boom 13'4" stick ½-yd dipper.

Lorain 40 Hi-Lift, 25' boom 19'8" stick LBS#5877, new ¾-yd dipper LBS#7750.

P&H 203A, LBS#2527, 19'6" boom 13' stick ⅝-yd dipper.

Bucyrus-Erie 30B tunnel front 9' stick 1½-yd dipper LBS#3392.

Koehring 502 with necessary parts to convert from crane to shovel, 21' boom 16' stick 1¼-yd dipper.

BACKHOE ATTACHMENT

Lorain 40A backhoe, LB#5429, with 18' boom, 7' stick, 36" cutting width Amsco bucket.

DRAGLINE FAIRLEADS

New Osgood ½-yd Model 200.

BACKHOE BUCKETS

¾-yd Lorain, 40, LBS#6105, 44" cutting width, teeth, sheave.

27" outside width drop bottom type LBS #1033, good condition.

26" outside width solid bottom type LBS #4377, good condition.

NEW TAGLINES

McCaffrey Model 648 for 1¼ to 2-yd crane.

McCaffrey Model 636 for ¾-yd to 1-yd crane.

SHOVEL DIPPERS

Lorain 27, ⅜-yd. LBS#4912.

Bucyrus-Erie 20B, ¾-yd. LBS#3801.

Lorain 41, ¾-yd, LBS#7433, new condition.

New Lima 1-yd, Amsco, LBS#2295.

Bucyrus-Erie 1¼-yd gas air, LBS#3782, fair.

Lorain 75 manganese 1¼-yd, LBS#7233, teeth & bail.

Lorain 75B, 1¼-yd. extended lip, 1¾-yd. LBS#2260.

Pettibone-Mulliken 2-yd Lorain 82 or 820, manganese, LBS#5361.

Pettibone-Mulliken 2-yd for 3500 Manitowac LBS#6153.

Pettibone-Mulliken 2-yd for 3500 Manitowac LBS#5763.

CONCRETE ROAD BUILDING & MISCELLANEOUS CONCRETE HANDLING EQUIPMENT

Pavers & Mixers

Ransome 34E dual drum, new October, 1943, with 36'9" boom, 1000 gallon auxiliary water tank, Cummins engine, rebuilt.

Jaeger Model 14DL, non-tilt mixer, rebuilt.

Concrete Finishers

Jaeger type "L" double screed, 10½'-12½' rebuilt.

Heltzel 10'-12' finisher, rebuilt.

Blaw-Knox gas-electric 10½'-12½', rebuilt.

2 Koehring 10'-12', rebuilt.

Koehring 10'-16' finisher, rebuilt.

Concrete Spreaders

Blaw-Knox type SA 10'-15' spreader new 1943. New condition.

Concrete Road Forms

830'—Truscon 7"x8" forms, with stakes.
1380'—Heltzel 7"x8" forms, with stakes.
1300'—Blaw-Knox 8"x8" forms, with stakes.
445'—Heltzel 9"x8" forms, with stakes.
1430'—Heltzel 10"x8" forms, with stakes.
1010'—Blaw-Knox 10"x8" forms, with stakes.

Fine Grade Machines

Flynn surgrader 10'-12', rebuilt.

R.B. Fine Grader for 21' width, rebuilt.

Form Graders—2 of each

Cleveland formgrader, new condition.

Carr formgrader, new 1944, rebuilt.

BELT CONVEYORS

New 18"—24"—30"—36"

- "Sealed-for-life" idlers
- Lattice or channel frame
- Shipment from stock depending on length

CLAM—DRAG—SCRAPER BUCKETS

GRADERS

Caterpillar 44 hydraulically operated drawn grader, 12' blade, wt. 8,300 lbs.

York Corporation Model SR drawn grader with scarifier, 8' blade, rakes, pneumatics, wt. 7,900 lbs.

DIESEL POWERED TRACTOR

"FD" Cletrac with Buckeye blade and double drum P.C.U.

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WE OWN THE EQUIPMENT WE ADVERTISE

SHOVELS, CRANES, DRAGLINES

Buc-Erie 54B 2½ yd. Diesel Shovel.
Buc-Erie 120B, 5 yd. Elec. Shovel.
Buc-Erie 120B, 5 yd. Steam Shovel.
P&H 1225 2½ yd. Electric Shovel.
Lorain 820 Diesel crane, 40 tons. 1943.
Lima 1201 Diesel Drag. 3½ yds.
P & H 1055 Dragline Diesel 80′ boom.
P & H 705 Dragline 2 yd. Diesel, 70′ boom.
P & H 705 diesel dragline.
P&H 855B 2 yd. Diesel Shovel.
Manitowoc 2,000 beam 1½ hed. diesel dragline.
Lorain dragline 78 diesel 75′ boom.
Marion 37 Electric Shovel 1¾ yds.
Marion 90 steam crane-pile driver.
Lorain 40, 15 ton Truck Crane.
Lorain MC4 moto crane. 1943. Excellent.
Orton 40 Ton Loco. Crane. Diesel.

ROAD CONTRACTORS EQUIP.

Finisher Koehring Long. 20′—24′.
Finisher Blaw-Knox 10′—12′
Port. 500 CFM Diesel Air Compressor.
Rooter 5½ ton LaPlant-Choate.
Blaw-Knox Concrete Spreader, 20′x24′.
Cat. 12 road grader 9K series.
Rooter LaPlante Choate 3 tine RP.
Road Forms 8000 ft. 9″x9″. Other sizes.
Cat. No. 11, Motor Patrol Grader.
Cat. No. 112 motor patrol. Excellent condition.

ASPHALT PLANTS

B-G Bit. Concrete Model 848 Mixing.
Cedar Rapids "Speedline".
Cedar Rapids Portable 20 Ton per hr.
Cedar Rapids 4000# Model E Portable.

Complete Plant Liquidation - Spot Delivery

SHOVEL:

Bucyrus-Erie Model 54B 2½ yd. Diesel Shovel.
Koehring Model 304 ¾ yd. Shovel, Diesel powered. New 1946.

CRANE:

Bucyrus-Erie Model 15B Crane and Shovel. Practically new.

TRACTORS:

Caterpillar D8, 2U series, about one year old, with D.D.P.C.U. and angledozer blade.
Caterpillar D8, SR series, D.D.P.C.U. and angledozer blade.
International TD18, with LeTourneau double drum unit. New in late 1946.
Allis-Chalmers HD14C, equipped with D.D.P.C.U. and pusher block. New July, 1947.
Allis-Chalmers HD-19H with angledozer blade. New July 1948.
Int. TD18 with Heil angledozer Trail Builder with D.D.P.C.U. New Nov, 1947.

GRADERS:

Warco Motor Grader, new September 1947.
Caterpillar, Model 112 Motor Patrol. Condition Excellent.
Austin-Weston 99H New Nov. 1948. Int.-UD14 Diesel Engine.

EUCLID REAR DUMP TRUCKS:

Model 31FD New January 1946.
Model 27FD New April 1946.
Model 27FD New April 1946.
Model 27FD New November 1946.
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FS-8423, Engineering News-Record
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FS-7325, Engineering News-Record
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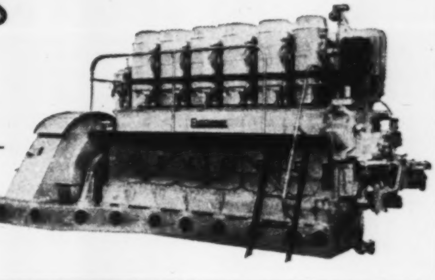

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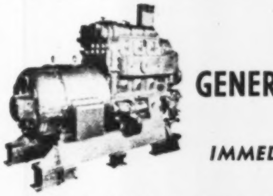

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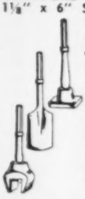

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OFFICIAL PROPOSALS

OFFICIAL PROPOSALS

(Continued from page 102).

Bids: April 27, 1949 (888)

Correction of ad appearing in 2/24/49.

Laying Cast Iron Pipe Distribution Mains and Appurtenant Work

CLARKSBURG WATER BOARD
CLARKSBURG, WEST VIRGINIA

Sealed proposals will be received for the item listed below by the Clarksburg Water Board at their office in Clarksburg, West Virginia until 10:00 A.M. on the 27th day of April, 1949, up to the hour of opening bids, at which time and place all bids will be publicly opened and read aloud. Bids will be received on the contract covering:

Laying Cast Iron Pipe Distribution Mains.

Approximate quantities:
14,000 lin. ft. of 12" pipe
6,000 lin. ft. of 8" pipe
600 cu. yds. of rock excavation

The successful bidder will be required to furnish a satisfactory performance bond in the amount of 100% of his contract. The contract documents, including specifications and drawings are on file at the office of the Clarksburg Water Board, Clarksburg, West Virginia and at the office of Alvord, Burdick & Howson, 1401 Civic Opera Bldg., Chicago, Illinois.

The right is reserved by the Water Board to reject any or all bids or to accept any considered advantage to the Water Board.

Certified check, cash, government bonds, bidder's bond, or bank draft payable to the Clarksburg Water Board, or a satisfactory bid bond executed by the bidder and a surety company in an amount equal to 10% of the bid, shall accompany the proposal.

No bid may be withdrawn after the scheduled closing time for the receipt of bids but bids may be withdrawn at any time prior to the scheduled time for opening bids.

SCOTLAND G. HIGHLAND
Secretary and General Manager
Clarksburg Water Board,
Clarksburg, West Virginia.

.... 1949.

OFFICIAL PROPOSALS

Bids: April 20, 1949 (937)

Intercepter

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF FINANCE
DIVISION OF PURCHASES
NOTICE TO SEWER CONTRACTORS

Sealed Proposals for the following project will be received at the office of the State Purchasing Agent, Room 123, State House, Smith Street, Providence, until 10 o'clock a.m. on the 20th day of April, 1949, and publicly opened and read.

BLACKSTONE VALLEY INTERCEPTER, SECTION A
BUCKLIN BROOK BRANCH
INTERCEPTER IN
PAWTUCKET AND EAST PROVIDENCE, RHODE ISLAND

Project involves 5,700 ft. of 90-in. sewer, 675 ft. of 24-in. sewer, and appurtenant work.

Drawings and contract documents may be examined at the office of the State Purchasing Agent, Room 123, State House, Providence, or the office of the Blackstone Valley Sewer District Commission, Room 238, State Office Building, Providence, or the office of Metcalf & Eddy, Engineers, 1300 Statler Building, Boston, Massachusetts, every week day except Saturdays and holidays between the hours of 8:30 a.m. and 4:30 p.m.

Copies of the specifications may be obtained upon depositing $25.00 at the office of the State Purchasing Agent, Room 123, State House, Smith Street, Providence. This deposit will be refunded to unsuccessful bidders upon returning specification in good condition, after an award has been made.

Each bidder must deposit with his bid a Bid Surety of $25,000.00 in the form of a certified check, bid bond or cash. The successful bidder must furnish a 100% performance bond.

Prevailing wage rates and labor laws for public work, as set forth in the "Information for Bidders" are applicable.

The State of Rhode Island reserves the right to waive any informalities in, or to reject any or all bids.

DEPARTMENT OF FINANCE
DIVISION OF PURCHASES
BY: Franklyn A. Adams
State Purchasing Agent

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2613) will be received by Bureau of Reclamation, Denver, Colorado, April 19, 1949, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, concrete lining, structures, and access road for the Horsetooth Feeder Canal, Colorado-Big Thompson Project. The work is situated about 8 miles west of Loveland, Colorado. Principal items are approximately: 423,000 cu. yds. of excavation; furnishing cement and reinforcement bars and placing 22,000 cu. yds. of concrete; furnishing and installing 25,000 pounds of steel tunnel supports; furnishing and installing 46,500 pounds miscellaneous metalwork; installing 227,000 pounds of 108-inch steel pipe siphons; 8,000 cu. yds. excavation for access road; and other work. Time allowed for completion will be 540 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.
(947)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2614) will be received by Bureau of Reclamation, Bend, Oregon, May 3, 1949, and then publicly opened for furnishing labor and materials and performing all work for the construction of Ochoco Dam repairs, Deschutes Project, Oregon. The work is situated about 6 miles east of Prineville, Oregon. Principal items are approximately: 310,000 cu. yds. excavation; 243,000 cu. yds. embankment and rockfill; 2,000 cu. yds. concrete; and other work. Time allowed for completion will be 500 days. For particulars, address the Bureau of Reclamation, Bend, Oregon; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.
(949)

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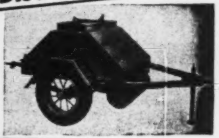

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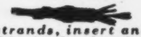
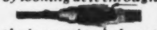


strands, insert and drive in the plug then apply the socket. See

what a solid and permanent joint you have by looking at it through



the inspection hole put there for the purpose.

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4121 S. LA SALLE ST., CHICAGO 9, IL

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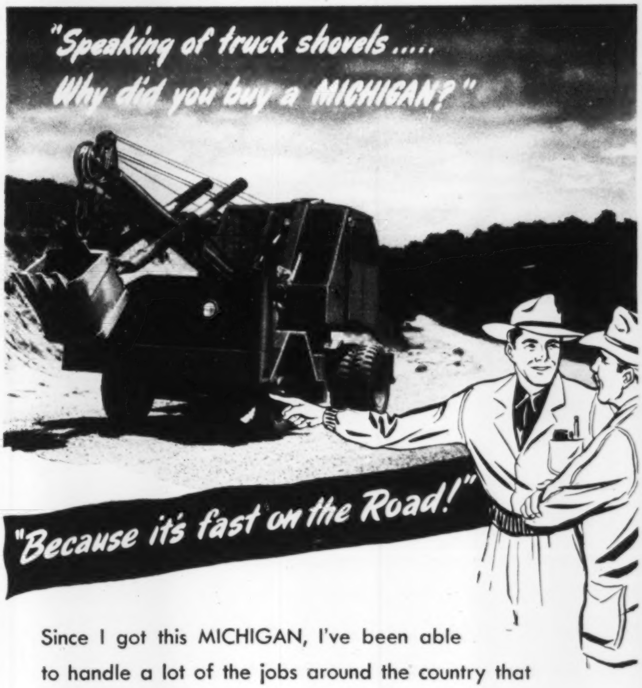
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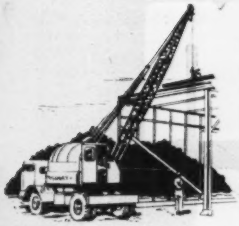
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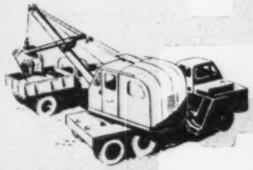
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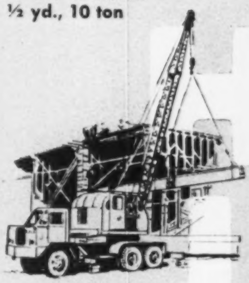
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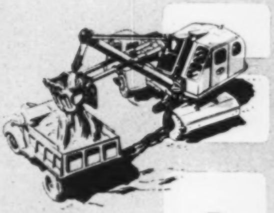
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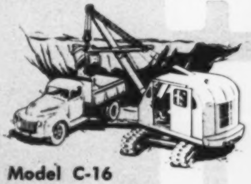
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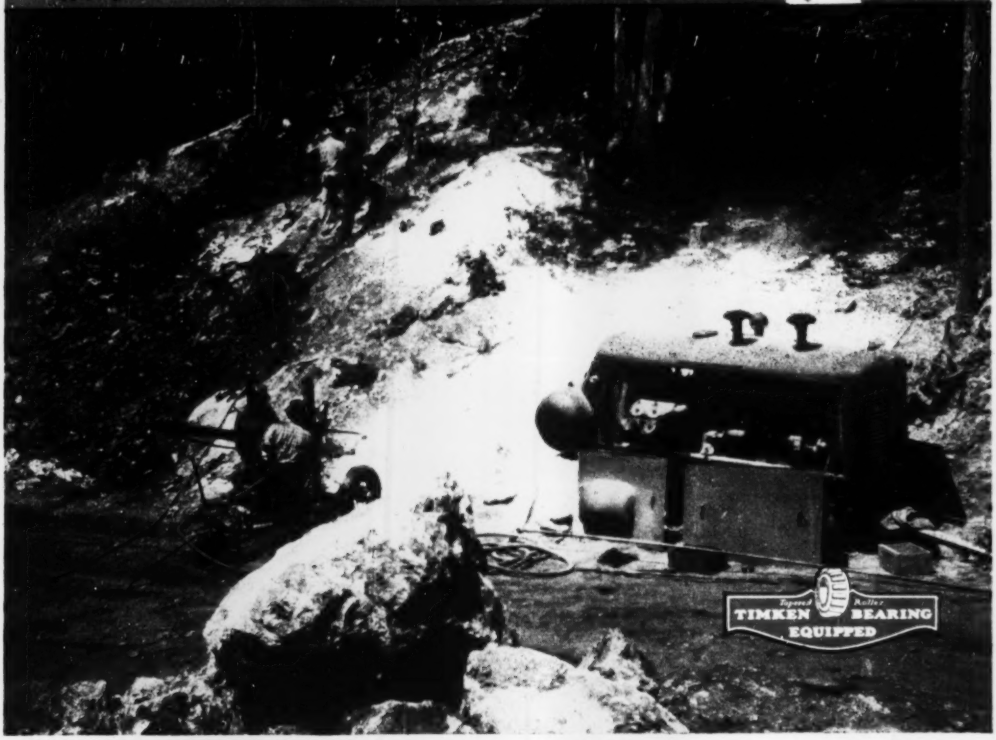

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